

Figure 1

Engineering Analysis of Representative Network Affiliate Stations

			FCC Grade B	Longley-Rice F(50,50,50) B	FCC Grade A	Longley-Rice F(50,50,50) A	Longley-Rice F(99,99,99) B	Longley-Rice F(70,90,50) B	A % Difference L-R F(50,50,50) B / L-R F(50,50,50) A /	B % Difference L-R F(50,50,50) B / L-R F(99,99,99) B	C % Difference L-R F(99,99,99) B L-R F(50,50,50) A /	D % Difference L-R F(50,50,50) B / L-R F(70,90,50) B	
Large Market Stations													
WRTV	ABC	1990 Population	2,448,707	2,500,296	1,440,180	1,500,445	1,127,802	2,158,960	-39.99%	-54.90%	-24.85%	-13.65%	
		1990 Households	925,731	943,589	552,632	575,262	435,916	816,266	-39.03%	-53.80%	-24.22%	-13.49%	
		Area (sq. km)	32,091	34,844	10,694	12,848	4,349	24,243	-63.13%	-87.52%	-66.15%	-30.43%	
KDKA	CBS	1990 Population	3,980,289	3,770,478	2,483,593	2,420,863	1,541,565	3,204,062	-35.80%	-59.11%	-38.32%	-15.02%	
		1990 Households	1,544,726	1,463,736	983,268	954,971	617,180	1,251,475	-34.78%	-57.84%	-35.37%	-14.50%	
		Area (sq. km)	31,553	33,474	10,645	12,714	3,379	22,968	-82.02%	-89.91%	-73.42%	-31.39%	
WJW	FOX	1990 Population	3,991,776	3,882,204	2,944,875	3,103,701	1,845,169	3,563,015	-20.05%	-57.62%	-46.99%	-8.22%	
		1990 Households	1,507,894	1,467,747	1,118,398	1,178,298	638,962	1,349,860	-19.72%	-56.47%	-45.77%	-8.05%	
		Area (sq. km)	18,119	18,045	8,899	9,854	2,280	13,400	-45.39%	-87.37%	-76.87%	-25.74%	
WHDH	NBC	1990 Population	8,717,104	8,584,959	5,325,532	5,554,746	2,592,336	6,086,862	-15.39%	-60.51%	-53.33%	-7.28%	
		1990 Households	2,499,474	2,445,593	1,982,669	2,066,202	987,700	2,265,979	-15.51%	-59.81%	-52.20%	-7.34%	
		Area (sq. km)	18,530	18,356	9,758	11,299	2,560	14,254	-38.44%	-86.05%	-77.34%	-22.35%	
									Average Change—Large Market Stations				
									1990 Population	-27.81%	-58.04%	-40.37%	-11.04%
									1990 Households	-27.26%	-58.93%	-39.39%	-10.85%
									Area (sq. km)	-52.25%	-87.71%	-73.45%	-27.48%
Medium Market Stations													
WBMA	ABC	1990 Population	778,931	709,285	601,818	636,175	10,487	655,423	-10.31%	-98.52%	-98.35%	-7.59%	
		1990 Households	297,545	272,672	234,073	245,522	3,673	252,669	-9.96%	-98.85%	-98.50%	-7.34%	
		Area (sq. km)	4,889	4,392	1,773	2,573	24	3,024	-41.41%	-99.46%	-99.06%	-31.16%	
KBTX	CBS	1990 Population	3,148,135	3,418,747	426,839	443,706	175,827	2,146,333	-87.02%	-94.86%	-80.42%	-37.22%	
		1990 Households	1,135,372	1,230,430	147,004	154,148	62,523	780,986	-87.47%	-94.92%	-80.44%	-36.53%	
		Area (sq. km)	37,711	40,598	13,638	15,457	5,050	29,462	-81.93%	-87.56%	-87.33%	-27.43%	
KBSI	FOX	1990 Population	841,468	756,873	568,126	565,471	86,958	577,060	-25.27%	-88.51%	-84.62%	-23.74%	
		1990 Households	323,744	292,875	218,843	217,764	33,399	222,284	-25.85%	-88.60%	-84.66%	-24.10%	
		Area (sq. km)	34,858	29,993	22,209	21,714	2,012	22,323	-27.60%	-93.29%	-90.73%	-25.57%	
WNCN	NBC	1990 Population	2,412,495	2,448,459	1,879,264	2,008,387	728,089	2,007,818	-17.91%	-70.24%	-63.75%	-17.93%	
		1990 Households	892,310	903,626	691,442	740,365	278,894	740,033	-18.07%	-69.14%	-62.33%	-18.10%	
		Area (sq. km)	41,299	40,408	26,743	29,896	7,851	29,808	-26.01%	-80.57%	-73.74%	-28.23%	
									Average Change—Medium Market Stations				
									1990 Population	-35.13%	-88.03%	-78.78%	-21.62%
									1990 Households	-35.29%	-87.83%	-78.23%	-21.52%
									Area (sq. km)	-39.24%	-90.22%	-82.72%	-27.60%
Small Market Stations													
KBYM	ABC	1990 Population	98,955	99,344	87,702	88,823	703	88,033	-12.60%	-99.29%	-99.19%	-11.39%	
		1990 Households	36,529	36,740	32,457	32,041	196	32,489	-12.79%	-99.47%	-99.39%	-11.57%	
		Area (sq. km)	14,299	13,580	8,594	9,019	498	9,706	-33.48%	-96.33%	-94.48%	-28.42%	
WMDN	CBS	1990 Population	243,376	244,219	152,791	156,478	60,845	164,269	-35.93%	-80.31%	-81.24%	-32.74%	
		1990 Households	87,840	88,320	55,952	57,245	23,294	59,980	-35.18%	-73.63%	-80.31%	-32.09%	
		Area (sq. km)	15,898	15,593	8,690	9,292	1,078	9,964	-40.41%	-93.06%	-88.40%	-36.10%	
KCVU	FOX	1990 Population	617,881	1,348,589	484,853	730,078	13,018	721,178	-45.86%	-99.03%	-98.22%	-46.52%	
		1990 Households	233,572	519,052	183,212	269,152	5,015	266,198	-48.15%	-99.03%	-98.14%	-48.71%	
		Area (sq. km)	22,792	17,580	16,077	15,276	515	15,676	-13.01%	-97.07%	-96.63%	-10.73%	
WJHG	NBC	1990 Population	398,980	508,750	217,788	280,709	73,598	333,711	-44.82%	-85.53%	-73.78%	-34.41%	
		1990 Households	148,590	190,429	81,229	104,582	27,210	124,859	-45.09%	-85.71%	-73.98%	-34.54%	
		Area (sq. km)	14,080	15,963	6,917	9,688	2,114	11,697	-39.31%	-88.76%	-78.18%	-28.73%	
									Average Change—Small Market Stations				
									1990 Population	-34.80%	-86.04%	-83.11%	-31.28%
									1990 Households	-35.30%	-88.46%	-82.70%	-31.73%
									Area (sq. km)	-31.55%	-93.31%	-89.42%	-25.49%
									Average Change—All Stations, All Markets				
									1990 Population	-32.58%	-77.37%	-66.78%	-21.31%
									1990 Households	-32.61%	-78.07%	-66.11%	-21.36%
									Area (sq. km)	-41.01%	-90.41%	-81.86%	-26.86%

The column labeled A in the chart shows the percentage difference in size between the larger number of households predicted to receive a signal of at least Grade B intensity and the smaller number of households predicted to receive a signal of at least Grade A intensity, both calculated using the standard Longley-Rice inputs of 50%/50%/50%.¹²³ This comparison is significant because the Commission, in the *Notice*, pointed out an obvious constraint against manipulation of the Grade B intensity values. The Commission acknowledged that it “cannot modify Grade B intensity so much that it effectively equals or exceeds Grade A signal intensity.”¹²⁴ This comparison thus demonstrates the potential effect on local viewership were the Commission to increase the current, traditional Grade B intensity values to equal the current, traditional Grade A intensity values. The Affiliate Associations reiterate that the Commission lacks the authority to modify the Grade B intensity values for purposes of the SHVA at all, let alone to increase them to the Grade A levels. This example is given only for illustrative purposes—to show the serious, adverse effects on local broadcasters to the scope of their copyright protection, and its concomitant economic impact, resulting from any such modification.

Should an increase in the Grade B values on this order be done, the potential decrease in viewership for these 12 representative network affiliates ranges from nearly 10% for WBMA-TV, Birmingham, Alabama, to more than 87% for KBTX-TV, Bryan, Texas, representing a potential loss of more than one million households, or nearly three million viewers, for KBTX. Even the relatively small decrease for WBMA still represents a loss of more than 27,000 households, i.e., more than

¹²³ Because Nielsen ratings measure households and, in effect, it is access to those households that advertisers buy, the following discussion is based on household data. However, population data are also provided, with very similar results.

¹²⁴ *Notice* ¶ 32.

73,000 potential viewers. But for KBTX, *considered alone*, a station located in a medium size market with a DMA ranking of 96, the potential in lost households is more than the total estimated number of unserved households in network “white areas” in the entire nation!

Over the dozen representative stations, the average reduction in households predicted to be served, were Grade B field strength values increased to equal Grade A values, is nearly *one third* (32.61%) of those predicted to be served. Were local broadcasters to lose, on average, a third of their viewership to duplicating distant network service, local advertising revenue would decline on approximately the same order. Many local broadcasters would not survive such a drastic reduction in revenue, especially given the fixed costs involved in running a local station. Clearly the Commission should not act to eviscerate the fundamental principles of localism in this manner.

The results provided in columns **B** and **C** show the absurdity of EchoStar’s 99%/99%/99% proposal.¹²⁵ Column B shows the percentage reduction in households predicted to be served by a signal of at least Grade B intensity when the Longley-Rice inputs are increased from their standard 50%/50%/50% to EchoStar’s proposed 99%/99%/99%. This increase in input parameters shrinks the predicted service areas and served households *dramatically*. The decrease in service areas for these 12 representative stations averages more than 90%, ranging from nearly 81% for WNCN-TV, Goldsboro, North Carolina, to more than 99% for WBMA. In fact, WBMA’s predicted Grade B service area under the EchoStar proposal is only 24 square kilometers. The decrease in served households averages nearly 80%, ranging from nearly 54% for WRTV-TV, Indianapolis, Indiana, a potential loss of more than 500,000 households, to more than 99% for KBMY-TV, Bismarck,

¹²⁵ As extreme as EchoStar’s proposal is, the proposed inputs of 100%/100%/100%, advanced by NRTC, are even more extreme. Thus, the following analysis is even more strongly applicable to NRTC’s proposal.

North Dakota. In fact, KBMY, an ABC affiliate, is predicted to serve only 196 households, just 703 people, under EchoStar's proposal. This example, alone, confirms the technological lunacy of EchoStar's proposal.

As if that example were not enough, the ultimate absurdity of the EchoStar proposal is shown in column C. That column shows the percentage difference between the number of households predicted to receive a signal of at least *Grade A* intensity under the standard input parameters and the number of households predicted to receive a signal of only Grade B intensity under EchoStar's proposed parameters. On average, the number of households predicted to receive the weaker Grade B signal under EchoStar's proposal is *two thirds* (66.11%) *smaller* than the number of households likely to receive the stronger Grade A signal with normal parameters. In other words, EchoStar's proposed inputs would shrink the currently-defined served number of households to an amount significantly smaller than the number of households predicted to receive a Grade A signal. Yet, as noted above, the Commission has acknowledged that Grade B service cannot be smaller than current Grade A service.¹²⁶ In addition, column C also shows that the EchoStar proposal would shrink the predicted Grade B service area to an area, on average, nearly 82% smaller than the area predicted to receive a signal of at least Grade A intensity. In most cases, a station's Grade B service area would not even extend as far as the station's current city grade contour, as required by 47 C.F.R. § 73.685. Of course, this is a *logical* paradox only, not a *physical* one. No matter how unrealistic the input parameters the satellite carriers may wish the Commission to require or recommend,¹²⁷

¹²⁶ See Notice ¶ 32.

¹²⁷ Not only are these parameters wholly unrealistic, they present statistical problems of their own. The statistical function underlying Longley-Rice relies on a log normal distribution. However, insufficient data exist for input parameters greater than 90%. Accordingly, the log normal
(continued...)

those statistical inputs will not alter the physical fact that local stations will, in reality, be providing the requisite minimum field strength over their principal communities. These households are served by their local affiliates and are ineligible for distant network service pursuant to the Act's compulsory license scheme. This example demonstrates that any modifications to the Longley-Rice input parameters are, in effect, just an indirect means by which to alter the actual intensity values and shrink the geographic area of copyright protection. Neither makes any engineering sense—neither should be done.

Finally, the results provided in column **D** show the adverse effects of even moderate changes in the Longley-Rice input parameters. These data are offered to document the extent to which even a modest reduction of the Grade B standard would adversely affect local television stations. This column shows the percentage difference between numbers of households and areas predicted to receive a signal of current, traditional Grade B field strength calculated according to the standard parameters of 50%/50%/50%, which are designed to reflect the median, and modified, non-standard parameters of 70%/90%/50%. These latter inputs are far less extreme than those proposed by the satellite industry. Although these inputs are not now advanced by the satellite industry, they were selected here simply for illustrative purposes. In fact, the 70% location variability factor and the 90% time variability factor were chosen precisely because they seem to call to mind the statistical meaning of the traditional Grade A intensity values. The Commission's Grade A values were originally developed so that 70% of the receiving locations at the outer perimeter would receive an

(...continued)

distribution begins to break down with inputs greater than 90%, and the results obtained are not reliable despite the so-called confidence factor.

acceptable quality picture at least 90% of the time.¹²⁸ *This similarity, however, is deceptive.* The field strength being plotted with Longley-Rice inputs of 70%/90%/50% is still the *Grade B* intensity value; it is **not** the Grade A field strength that is being measured. Unlike the Grade B field strength values, the Grade A values have a terrain factor of 4 dB built in to improve the location probability, assume no (zero) receiving antenna gain (vis-à-vis a gain of 6 dB for VHF and 13 dB for UHF for Grade B), and contain substantial margins to overcome external environmental noise (14 dB for low VHF and 7 dB for high VHF).¹²⁹ Therefore, essentially by definition, one should expect that a Longley-Rice 70%/90%/50% plot of Grade B values should be more geographically expansive in most cases than a Longley-Rice 50%/50%/50% plot of Grade A values. This, in fact, is what the data confirm.

This discussion further illustrates, that, because of the different planning factors involved in the two grades of service, one cannot assume that, merely by changing the input parameters in Longley-Rice, one can reproduce any given field strength value and its distribution over a given area.¹³⁰ There is a relationship between the two, but it is not direct. For any given Longley-Rice inputs of *x* % location variability and *y* % time variability plotting traditional Grade B field strength values, there is a corresponding *different* median field strength, *z* dBu, that can be plotted by Longley-Rice with inputs of 50%/50%/50% so that the *total* areas encompassed by the two plots are

¹²⁸ See Notice ¶ 28.

¹²⁹ See Television Broadcast Service, *Third Notice of Further Proposed Rule Making*, FCC 51-244, 16 Fed. Reg. 3072, 3080 (Appendix B) (Apr. 7, 1951); *Understanding Service Contours* at 142; *Technical Planning Factors Review* at 4. External environmental noise is not a factor for UHF.

¹³⁰ Cf. Engineering Statement at 10 (“Any change in the time and location factors used to determine the Grade B service values would result in some new grade of service such as Grade X, since predicted Grade B is defined as the service expected at least 90% of the time at the best 50% of the locations.”).

equal. In other words, changing the Longley-Rice variability parameters, but plotting the traditional Grade B intensity value, is equivalent, albeit indirectly, to modifying the Grade B intensity value itself and plotting those locations where that median field strength is predicted to exist.¹³¹

The results in column D, then, show that even very moderate alterations to the Longley-Rice variability inputs will result in significant losses of viewership. Over these dozen representative affiliate stations, there is a 21% average decrease in the number of households to be served and an average reduction in area predicted to be served of nearly 27%. In the case of KBTX, there is a loss of served households of nearly 37%, which amounts to a loss of more than 1,270,000 potential viewers, and a loss of service area of more than 27%. In the case of KCVU-TV, Paradise, California, there is a loss of served households of nearly 49%, amounting to a loss of more than 625,000 potential viewers, and this in a small market with a DMA ranking of 130.

Despite the significant difference in the field strength values being measured, as discussed above, in many cases a Longley-Rice 70%/90%/50% plot of Grade B field strengths is approximately the same size as a Longley-Rice 50%/50%/50% plot of Grade A field strengths. For example, in the case of KBSI-TV, Cape Girardeau, Missouri, the predicted Grade B service area is only 2.8% bigger than the predicted Grade A service area and only 2% more households are predicted to be served. In the case of KCVU, the predicted Grade B service area is only 2.6% bigger than the predicted Grade A service area but actually nearly 3000 *fewer* households (1.1%) are predicted to be served. And in the case of WNCN, the predicted Grade B service area is actually *smaller* than the predicted Grade A service area by a fraction of a percent (0.29%), and 332 fewer

¹³¹ If either x or y is greater than 50%, then z will necessarily be greater than the Commission's traditional Grade B intensity values, i.e., greater than 47 dBu for low VHF, 56 dBu for high VHF, and 64 dBu for UHF.

households (0.04%) are predicted to be served.

In summary, these data confirm the Affiliate Associations' contention that increases in the Grade B field strength values or in the Longley-Rice input parameters will significantly reduce the copyright protection afforded by the SHVA and erode the viewership base of local network affiliate stations.

IX.

The Commission Cannot Substitute A Predictive Model For The Act's Site Measurement Requirement

A. The Act Requires A Site Measurement

As the *Notice* acknowledges, the Act requires an actual "signal measurement at an individual household to determine if an adequate signal is actually received."¹³² Only an actual site test can settle the legal eligibility of an individual household to receive distant network service.¹³³ There is no ambiguity about this legal requirement, as two federal courts have expressly held.¹³⁴ It is, therefore, clear that the Act grants no authority to the Commission to unilaterally substitute a

¹³² *Notice* ¶ 29; *see also id.* ¶ 36 (stating that "individual testing is the key safety net mechanism under the SHVA for proving that a specific household is unserved and thus eligible under the law to receive satellite delivery of network affiliated television stations").

¹³³ *See* H.R. Rep. No. 103-703, at 13 (1994) (stating that the "unserved household" requirement requires "an objective test, accomplished by actual measurement"); *id.* at 14 n.36 (stating that the requirement of receiving "an over-the-air signal of Grade B intensity" requires "that the household actually receive a signal of that intensity"); S. Rep. No. 103-407, at 9 n.4 (1994) (stating that the "unserved household" requirement requires an "objective test [that] can be accomplished by actual measurement").

¹³⁴ *See ABC First Order*, 17 F. Supp. 2d at 472-74; *CBS, Inc. v. PrimeTime 24 Joint Venture*, 9 F. Supp. 2d 1333 (S.D. Fla. 1998).

predictive model for the actual site measurement required by the Act. The Commission, as noted earlier, may not preempt or abrogate any federal statute, let alone a copyright statute.

Even were the predictive model “not [to] replace actual measurement” but “serve as a presumption of service or lack of service for purposes of the SHVA,”¹³⁵ the Commission still lacks the authority to rewrite the statute for that purpose.¹³⁶ The Act does not rely on “presumptions”; it requires—as the Commission in the *Notice* seems to acknowledge—actual site signal measurement tests. The Commission cannot create presumptions to enforce the Act. The federal courts—not the Commission—are authorized to enforce the Act, and the federal courts may ignore any “presumptions” the Commission, an agency with no authority to interpret or enforce the Act, might create.

Satellite carriers have asserted that because the broadcasters in the Miami case supported the use of Longley-Rice maps to create “presumptions” to enforce the court’s injunction, they are now estopped from denying that the Commission has authority to adopt a presumptive predictive standard. For example, EchoStar stated that “[t]he plaintiffs in the Florida case have conceded [that a predictive model is necessary to enforce the Act] by proposing their own preferred predictive method.”¹³⁷

This argument ignores the fact that Congress authorized the federal courts—not the Commission—to enforce the Act and gave the courts the authority to fashion equitable remedies.¹³⁸

¹³⁵ *Notice* ¶ 24.

¹³⁶ *See, e.g., Southwestern Bell Corp. FCC*, 43 F.3d 1515, 1520 (D.C. Cir. 1995).

¹³⁷ EchoStar Petition at 6 n.13.

¹³⁸ *See* 17 U.S.C. § 119 (a)(5)(A) (incorporating the general enforcement mechanisms of 17 (continued...))

The Supreme Court has repeatedly made clear that the equitable powers of the federal courts are expansive:

It is a general rule that a court of equity, in a suit of which it has and takes cognizance, may administer complete relief between the parties, even though this involves the determination of legal rights which otherwise would not be within the range of its authority. And under that rule a court of equity in awarding relief to one party may impose conditions protecting and giving effect to correlative rights of the other.¹³⁹

* * *

[T]he comprehensiveness of [a court's] equitable jurisdiction is not to be denied or limited in the absence of a clear and valid legislative command. Unless a statute in so many words, or by a necessary and inescapable inference, restricts the court's jurisdiction in equity, the full scope of that jurisdiction is to be recognized and applied. The great principles of equity, securing complete justice, should not be yielded to light inferences, or doubtful construction.¹⁴⁰

* * *

[E]quity has contrived its remedies so that they shall correspond both to the primary right of the injured party, and to the wrong by which that right has been violated, and has always preserved the elements of flexibility and expansiveness, so that new ones may be invented, or old ones modified, in order to meet the requirements of every case, and to satisfy the needs of a progressive social condition, in which new primary rights and duties are constantly arising, and new kinds

(...continued)
U.S.C. §§ 501, 502-506, 509).

¹³⁹ *Kinney-Coastal Oil Co. v. Kieffer*, 277 U.S. 488, 507 (1928) (citations omitted).

¹⁴⁰ *Porter v. Warner Holding Co.*, 328 U.S. 395, 398 (1946) (internal quotation marks and citations omitted); *see also California v. American Stores Co.*, 495 U.S. 271, 295 (1990) (quoting *Porter*, 328 U.S. at 398). In *American Stores*, the Court further observed that “when Congress endows the federal courts with equitable jurisdiction, Congress acts aware of [equity’s] longstanding tradition of flexibility.” *Id.* (citing *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 313 (1982)).

of wrongs are constantly committed.¹⁴¹

By proposing the Longley-Rice maps to the Miami court, the broadcasters there correctly recognized that the court, by virtue of its equitable powers, could use the maps to create presumptions to enforce the Act. Their proposal—contrary to EchoStar’s argument—is in no way inconsistent with the Affiliate Associations’ position that the Commission—which, unlike the federal courts, cannot enforce the Act and which does not have equitable powers—is without authority to engraft a predictive, “presumptive” standard onto the Act.

B. The Longley-Rice Methodology In Point-To-Point Mode, With Input Parameters Of 50%/50%, Is The Best Current Means Of Predicting Grade B Service At An Individual Household

To the extent the Commission wishes to advise Congress, the Affiliate Associations endorse the Commission’s proposal to recommend the Longley-Rice propagation model as a means of predicting Grade B service at individual locations.¹⁴² Both the broadcasting and satellite industries are familiar with Longley-Rice, and, as the Commission determined in the DTV proceedings, a better predictive model has not been developed.

The Affiliate Associations, however, do not believe the Commission should adopt Longley-Rice “as implemented for DTV”¹⁴³ in all its particulars. In the DTV proceedings, the Commission was seeking to replicate NTSC Grade B service areas for purposes of defining DTV

¹⁴¹ *Union Pac. Ry. Co. v. Chicago, R.I. & P. Ry. Co.*, 163 U.S. 564, 601 (1896) (internal quotation marks and citation omitted); *see also Alexander v. Hillman*, 296 U.S. 222, 239 (1935) (“[C]ourts of equity may suit proceedings and remedies to the circumstances of cases and formulate them appropriately to safeguard, conveniently to adjudge, and promptly to enforce substantial rights of all the parties before them.” (citation omitted)).

¹⁴² *See Notice* ¶ 34.

¹⁴³ *Id.*

stations' noise-limited service areas. Thus, the Commission defined the service area of an individual NTSC station, *for DTV purposes only*, as the area *within* the station's Grade B service contour, reduced by interference.¹⁴⁴ The Commission was entirely concerned with predicting service *areas*, not determining signal strength at individual locations. By contrast, in the instant proceeding, the Commission is concerned with predicting, as precisely as possible, which *individual* households receive a signal of Grade B intensity. The Commission should not, therefore, confine Longley-Rice only to areas within a local station's predicted Grade B service area. By its definition, the Grade B contour represents a median field strength. Obviously, a significant number of locations outside a station's predicted contour will be able to receive a signal of Grade B intensity.

Multipath (ghosting) is a separate matter and is independent of signal intensity. Multipath is caused by propagation signal reflections, resulting in multiple signals arriving at the receiver at slightly different times. These reflections are highly dependent on terrain characteristics, including vegetation and buildings. In addition, the Commission's terrain elevation database only contains values every 3 arc-seconds of latitude and longitude.¹⁴⁵ Based on the data available, it is simply not possible to account for multipath in the current version of Longley-Rice. In any event, multipath is less serious than it once was due to the advent of modern antennas with high front-to-back ratios and "ghost cancelers" either built in to the receiver or available as an external device.

It is, of course, important to specify the receive location coordinates as accurately as

¹⁴⁴ See *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, Sixth Report and Order*, FCC 97-115, 7 Comm. Reg. (P & F) 994 (1997), ¶ 199 and Appendix B.

¹⁴⁵ See, e.g., *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, OET Bulletin No. 69 (FCC July 2, 1997), at 8.

possible,¹⁴⁶ and it is the Affiliate Associations' understanding that commercially-available geocoding processes, such as that offered by Decisionmark Corp., can generally locate a household to within 1 arc-second of latitude and longitude. Because Longley-Rice would be utilized for predicting a signal's strength at a particular location, the model should be used in point-to-point mode.¹⁴⁷ The Commission should not attempt to redefine its Grade B construct by an alternative means, for the Commission has no authority to do indirectly what it is prohibited from doing directly. Thus, using Longley-Rice in area prediction mode, which is, in any event, less accurate with respect to the prediction of signal strength at a particular location than the point-to-point mode, would be tantamount to redefining the Grade B service area by the backdoor. In point-to-point mode, location variability is not a factor, leaving only time variability and confidence level as the two principal inputs.

In implementing Longley-Rice, it is imperative that the inputs for time variability and confidence level be set at 50%/50%.¹⁴⁸ For 50 years, the Commission has been concerned with the *median* field strength. Use of 50%/50% parameters in Longley-Rice generates median results. The current Grade B field strength values already incorporate a time fading factor to achieve the desired level of statistical reliability, viz. that the best 50% of locations at the contour receive an acceptable picture at least 90% of the time.¹⁴⁹ The Longley-Rice time variability input should only be changed

¹⁴⁶ See Notice ¶ 34.

¹⁴⁷ See Engineering Statement at 12 ("The Longley-Rice model used in point-to-point mode, as was the case in the DTV analysis work, provides a result that would be appropriate for evaluation of individual locations for SHVA purposes.").

¹⁴⁸ See Notice ¶ 32 (seeking comment on changing Longley-Rice variables).

¹⁴⁹ See *id.* ¶ 4 n.16.

to 90% if the time fading factor is subtracted from the median field strength values, i.e., if Longley-Rice were set to predict a field strength of 41 dBu for low VHF, 51 dBu for high VHF, and 60 dBu for UHF. Moreover, as demonstrated above, any increases in the input factors would have serious, adverse consequences for local broadcasters.

Again, it is critical that the inputs be set at 50%/50%.¹⁵⁰ Any other inputs are nothing but a backdoor means to effectively alter the Grade B signal intensity values.¹⁵¹ The Commission lacks authority to take such action, and all the difficulties with such an approach, discussed *supra*, are fully applicable to this indirect means of redefining “signal of Grade B intensity.”

As the Commission states in the *Notice*:

We acknowledge and reiterate Congress’ decision in the SHVA to protect network-affiliate relationships and to foster localism in broadcasting. If we change the number of viewers predicted to receive a local station, we may substantially affect these policies. As we have noted, localism is central to our policies governing broadcasting and the obligation of broadcasters to serve the public interest.¹⁵²

If the Commission frames its action to recommend to Congress the merits of the Longley-Rice predictive methodology in terms of fostering localism, as the Affiliate Associations submit it must, it is readily apparent that the Commission cannot reduce the number of viewers predicted to receive a local station without seriously jeopardizing that framework. It is difficult to see how local broadcasting is fostered, but easy to see how it is harmed, if Congress or the Commission’s predictive model methodically *understates* the number of viewers that can actually receive a signal

¹⁵⁰ See Engineering Statement at 10.

¹⁵¹ See *id.* (“Changing the variability factors in a predictive model such as Longley-Rice is essentially the same as changing the values used to define the service.”).

¹⁵² *Notice* ¶ 36.

of Grade B intensity.

It is apparent that neither Congress nor the Commission should shrink the number of predicted “served” households. Doing so will essentially force local broadcasters to conduct a greater number of site tests to demonstrate that viewers predicted to be eligible for satellite service are, in fact, not eligible. Broadcasters will then be further forced to seek recovery of the testing costs through civil actions, the only means currently available to do so.¹⁵³ This must be viewed against Section 119(a)(5)(D) of the Act in which Congress expressly placed the “burden of proof”—the burden of signal measurement—on satellite companies and not on broadcasters. It is clear Congress intended, when it adopted the “burden of proof” amendment in 1994, to place the measurement burden on the party receiving the benefit of the Act’s compulsory license—i.e., the satellite industry. The Commission cannot and should not, through the back door, shift the measurement burden to local stations through a flawed “predictive” service scheme. Finally, the Commission should not promote litigation and needless site testing—for either party—by proposing parameters that are likely to understate the true number of households that can actually receive a signal of Grade B intensity.

To preserve localism,¹⁵⁴ then, as the Act expressly requires, the Commission should recommend a predictive model that recognizes that many households located outside a station’s predicted Grade B contour can, in fact, receive a signal of Grade B intensity. By taking into account technological improvements in receiver noise figures, the Commission could specify that Longley-Rice predict signal levels some 6 dB below those currently specified in 47 C.F.R. § 73.683.

¹⁵³ See 17 U.S.C. § 119(a)(9).

¹⁵⁴ See *Notice* ¶ 36 (asking “what, if any, steps can we can take to further [our] policies” concerning localism).

In this way, the Commission would expand to its true range a station's currently artificially-depressed service area by prohibiting satellite carriers from pirating network and affiliate programs for retransmission to those who already can receive an acceptable quality picture over the air.

In summary, the satellite industry's proposed inputs of 100%/100%/100%, 99%/99%/99%, and 95%/95%/50% reflect a serious misunderstanding of the relationship between the Commission's Grade B signal intensity values and the Longley-Rice methodology. Each of their proposals would predict that acceptable service is only received within an area smaller than that circumscribed by a station's predicted Grade A contour, a self-contradictory result. If the Commission is to recommend a predictive model to Congress, then it should propose Longley-Rice, version 1.2.2, in point-to-point mode with the time variability and confidence levels set at 50%/50%.

X.
Any Prescribed Signal Testing Methodology
Must Be Consistent With The Act

The Commission seeks comment on its "conclusion that the Commission's authority to define a signal of Grade B intensity reasonably includes the authority to adopt a method of measuring signal intensity at an individual household."¹⁵⁵ The Commission, of course, already has established a signal strength measurement methodology in Section 73.686 of its rules. Section 73.686 sets forth two possible measurement methods. The first method requires measuring field strength continuously across a mobile run at least 100 feet long (the "100 foot run method").¹⁵⁶ The second method, used only "if overhead obstacles preclude a mobile run," requires a cluster of five

¹⁵⁵ Notice ¶ 25.

¹⁵⁶ See 47 C.F.R. § 73.686 (b)(2)(v).

spot measurements to be taken with each measurement to be made within 200 feet of the first (the “cluster method”).¹⁵⁷ Both methods mandate the use of a 30 foot test antenna and require that the antenna be oriented towards the signal for maximum gain.¹⁵⁸ The *Notice* states that “[t]he purpose of the procedure specified in [Section 73.686] is not to determine the receivability of a signal at a single spot, but to determine . . . the nature of service to the community”¹⁵⁹ and concludes that the Commission “has not established a method specifically for measuring signal intensity at individual households.”¹⁶⁰

Should the Commission determine it has the authority to modify its existing measurement methodology or create a new one specifically designed to measure signal strength at individual locations, it must, of course, adopt a methodology that is consistent with the Act. Any methodology that is inconsistent with the Act’s provisions will be rejected by the federal courts called upon to enforce it. For this reason, the Commission cannot adopt the measurement methodology proposed by EchoStar.

A. EchoStar’s Measurement Proposals Would Make A Mockery Of The Act’s “Unserved Household” Restriction

EchoStar has proposed that the Commission adopt a measurement methodology that measures signal intensity at a subscriber’s television set, using the subscribers’ own, possibly faulty, equipment without orienting the receiving antenna toward the broadcast signal for maximum gain.

¹⁵⁷ *Id.* § 73.686 (b)(2)(viii).

¹⁵⁸ *Id.* § 73.686 (b)(2)(ii)-(iii).

¹⁵⁹ *Notice* ¶ 39.

¹⁶⁰ *Id.* ¶ 25.

EchoStar further proposes that measurements be taken after the signal has passed through the number of splitters used by the household.¹⁶¹ These proposals are inconsistent with the requirements of the Act, are contrary to longstanding Commission practice, and make a mockery of the Act's "unserved household" restriction.

First, EchoStar suggests that, rather than measuring signal intensity at the rooftop, it should be measured at the homeowner's television set because "signal intensity from a rooftop antenna loses strength as it travels through the cable connecting the antenna with a television set."¹⁶² Accordingly, EchoStar claims that "[a] signal equal to 47 dB at the roof would not be adequate *at the television*."¹⁶³

In the early 1950s, when the Commission developed its Grade B standards, it specifically incorporated a factor to account for antenna-to-television signal attenuation. The Grade B signal intensity values, assuming a transmission line of 50 feet composed of 300 ohm twinlead cable, already contain margins, 1 dB for low VHF, 2 dB for high VHF, and 5 dB for UHF, designed to account for any signal attenuation or transmission line loss.¹⁶⁴ Thus, Grade B intensity values have been set at levels sufficiently high to overcome signal attenuation. Contrary to the satellite carriers' argument, a signal of Grade B intensity which is measured at the rooftop is specifically designed to produce an acceptable picture "at the television set."

¹⁶¹ See *id.* ¶ 19 n.76.

¹⁶² EchoStar Petition at 27.

¹⁶³ *Id.* (emphasis added).

¹⁶⁴ See Television Broadcast Service, *Third Notice of Further Proposed Rule Making*, FCC 51-244, 16 Fed. Reg. 3072, 3080 (Appendix B) (Apr. 7, 1951). For a more complete discussion of the planning factors used in the development of the Grade B intensity values, see *supra* Parts VIII.B, VIII.D.

Furthermore, when the Commission examined the matter, in 1975, approximately midway between the time the Grade B rules were adopted and now, the Commission rejected a proposal to permit measurements with the receiving antenna at a 10 foot height, which would give representative results for indoor antennas, because “its adoption would needlessly complicate a[n existing] methodology which appears to have general industry support.”¹⁶⁵ Implicit in this rejection of lowering the measurement height to 10 feet *outdoors* is a further rejection of the notion that measurements should be taken at the television set for any reason.

In addition, EchoStar proposes that signal strength measurements be taken using a homeowner’s own uncalibrated equipment and wiring.¹⁶⁶ Measurements taken using nonstandardized equipment are meaningless because a homeowner’s antenna and/or wiring may be defunct or broken.¹⁶⁷ The Commission certainly cannot expect federal courts, in enforcing the Act, to rely upon readings obtained from faulty equipment. The only way to accurately determine whether a household truly cannot receive a signal of Grade B intensity over the air is to take the signal measurements using standardized, calibrated equipment. A standard based on any other premise would have no integrity or uniformity.

In fact, EchoStar acknowledges as much in the complaint it has recently filed in federal court in Colorado. Although EchoStar tells the Commission that “[t]he only place where the strength of

¹⁶⁵ Television and FM Field Strength Curves, *Report and Order*, FCC 75-636, 34 Rad. Reg. 2d (P & F) 361 (1975), ¶ 67.

¹⁶⁶ See EchoStar Reply at 16.

¹⁶⁷ See Engineering Statement at 13 (“In any measurement or evaluation, the soundness of the equipment is paramount.”).

a television signal is relevant to the [Act's] statutory purposes is at the television itself,"¹⁶⁸ it has suggested to the Colorado court that an outdoor measurement standard be used. EchoStar has asked the court to rule that measurements should be taken, not at the television set, but "as close to the house as possible to obtain the most relevant reading," and it now also recommends the use of standard equipment.¹⁶⁹ Thus, apparently, even EchoStar itself does not really believe what it has previously told the Commission—that signal intensity measurements should be taken indoors using the homeowner's own equipment.

EchoStar has further suggested that measurements be taken without aiming the receiving antenna toward the station whose signal is being received. Instead, it proposes that signal intensity measurements for all local network affiliate stations be taken with the subscriber's antenna "positioned for maximum gain on the station *watched the most* by the particular household."¹⁷⁰

This truly silly suggestion is contrary to longstanding Commission engineering and legal practice.¹⁷¹ The Commission has repeatedly recognized that a signal strength measurement will not be accurate unless the receiving antenna is pointed toward the source of the signal. The Commission's current signal measurement rules require that all measurements be taken with the antenna "oriented so that the sector of its response pattern over which maximum gain is realized is

¹⁶⁸ EchoStar Reply at 15.

¹⁶⁹ EchoStar Complaint ¶34.

¹⁷⁰ EchoStar Petition at 29 (emphasis added). The utter nonsense of this suggestion is illustrated by the following: Who would determine which station is most "watched"—the homeowner or, if more than one occupant, a majority of those occupying the household? Could children vote? What would be the relevant period required for "watching"—a week, a month, a year, or five years? How could "watching" be proved—by meter or diary? And should "watching" disputes be brought to the federal courts or to the Commission for resolution?

¹⁷¹ See Engineering Statement at 15.

in the direction of the transmitter.”¹⁷² As the Commission stated just this August in a case involving its newly adopted OTARD rules, the “standard methodology for signal strength measurement . . . requires that the test antenna be oriented so that it is most likely to be able to measure the signal at its *best* available strength.”¹⁷³ The rationale is obvious:

This requirement to orient toward the strongest signal available guards against an improper signal strength test in which the antenna is oriented (intentionally or inadvertently) in the worst possible direction for receiving the signal, thus giving a misleading result.¹⁷⁴

For the Commission to accept EchoStar’s suggestion that the orientation of an antenna not be optimized to receive the best possible signal would be a repudiation of 40 years of Commission engineering, regulatory, and legal precedent.

Moreover, the satellite carriers’ suggestion that viewers should not be required to orient their receivers toward the transmitting station to maximize reception is inconsistent with the satellite industry’s own practice. When a customer subscribes to satellite service, the satellite provider installs the dish so that it is oriented to receive the most direct, unobstructed signal from the satellite. If the reception of satellite service requires the receiving antenna (dish) to be correctly oriented to the satellite (and it does), then the satellite industry cannot fairly claim that it is unreasonable to expect households to do the same to receive service from local broadcast stations.

EchoStar also argues that a subscriber should not be required to orient his or her antenna toward each station because to do so would require viewers to purchase expensive rotors or other

¹⁷² 47 C.F.R. §73.686(b)(2)(iv).

¹⁷³ *In re* Jay Lubliner and Deborah Galvin, Potomac, Maryland, FCC 98-201 (released Aug. 21, 1998), ¶ 16 (emphasis added).

¹⁷⁴ *Id.* ¶ 16 n.43.

equipment. For example, EchoStar states that “[t]he American consumer should not be required to purchase actuators, in line amplifiers and other exotic features at possibly substantial cost in order to receive a Grade B intensity signal.”¹⁷⁵ However, none of the standard equipment necessary for receipt of over-the-air signals is expensive or exotic. In fact, a middle-tier receiving antenna can be purchased at any Radio Shack for approximately \$40, and, if a rotor is necessary, it costs about \$65.¹⁷⁶ In the event that a consumer chooses to incorporate splitters in the receiving system, their losses can be overcome with an inexpensive in-line amplifier.

As for the question posed in the *Notice* as to whether a conventional antenna includes a rotor,¹⁷⁷ the answer depends on where the household is located.¹⁷⁸ If the market’s local stations share an antenna farm (most do not), then a single position for an antenna may be typical. If towers of local stations are not co-located, then rotors are necessary and are commonly used. In most instances, an antenna cannot be pointed toward different transmitting towers—as longstanding FCC engineering and legal precedent require for maximized reception—unless the antenna has a rotor. So, a rotor is very much considered to be a “conventional” part of the antenna.

It is particularly galling for satellite carriers to suggest that Americans should be relieved from the burden of purchasing over-the-air reception equipment given the price of satellite dishes. Satellite equipment costs typically run in the hundreds of dollars, and that figure does not include the monthly service fees. For example, DirecTV charges between \$329-425 for its dishes including

¹⁷⁵ EchoStar Petition at 28.

¹⁷⁶ See Radio Shack, *1999 Answers Catalog* at 156-57.

¹⁷⁷ See *Notice* ¶ 40.

¹⁷⁸ Engineering Statement at 14-15.

installation.¹⁷⁹ Thus, EchoStar is asking the Commission to relieve subscribers of the “burden” of spending a modest sum in order to purchase equipment that enables them to receive *free*, over-the-air broadcast signals so that these same subscribers can spend much more to buy satellite equipment to receive the very same programming from a distant station for a monthly fee.

In addition, EchoStar has suggested that signal intensity measurements be taken “after the signal has traveled through splitters that would be necessary to serve each television in the home in which the measurement is taken.”¹⁸⁰ This procedure would be wholly inconsistent with the Act. Whether a household can receive a signal of Grade B intensity is not dependant on the number of television sets the household has. Under EchoStar’s proposal, two households located next door to each other which receive signals of identical strength could be classified differently under the Act based solely on the number of television sets each household has. Allowing the homeowner to choose the number of splitters to be used during measurements also would encourage manipulation of test results. A homeowner could simply claim he has a television in every room in order to qualify as “unserved.” Moreover, this practice would be administratively unworkable—should a household have to be re-tested every time a new television is purchased or an old one is discarded?

The measurement methodology proposed by EchoStar would make a joke of the meaning of the term “unserved household.” When Congress granted the satellite carriers the extraordinary privilege of a compulsory copyright license, it intended for the license to be used only to provide network signals to households that *truly cannot* receive a signal of Grade B intensity over the air with an outdoor, rooftop antenna. Congress did not intend to permit service to households that are

¹⁷⁹ Information provided by Monique, DirecTV Sales Representative, reached at 800-217-9407, ext. 3002 on December 1, 1998.

¹⁸⁰ EchoStar Complaint ¶ 37.

not receiving an acceptable picture simply because they are using faulty, defunct, or miscalibrated equipment or because they refuse to use an outdoor antenna or orient their antenna toward the local network station's transmitter.

B. Should The Commission Decide To Adopt A Measurement Methodology, It Should Adopt The Model Used In The PrimeStar/Netlink Agreement

Should the Commission decide it has the authority to adopt a new measurement methodology, it should adopt the methodology (the "industry methodology") that has been agreed upon voluntarily in the compliance agreement ("Agreement") between the broadcast industry and two satellite carriers, PrimeStar and Netlink.¹⁸¹ This methodology incorporates the Commission's existing test procedures as set forth in Section 73.686 but modifies them for testing at individual households. The fact that these two satellite carriers have already agreed to this methodology in an arms-length negotiation is, perhaps, the best evidence that this methodology represents a fair and cost-efficient way of conducting household-by-household measurements. The essential elements of this methodology are as follows:

Testing Location. Theoretically, the ideal location for purposes of measuring signal intensity is the area above the roof, wherever the antenna would normally be located. However, it generally will not be practical to take measurements at that location. Obstructions such as trees, lawns, and shrubbery may make it difficult or impossible to maneuver the measurement equipment to such a location above the roof of a house. Although handheld measuring equipment could be used, it would be time-consuming and imprudent to require technicians to climb on roofs to take measurements.

¹⁸¹ The Agreement is part of the public record in this proceeding. *See Notice* ¶ 13 n.53.

The Commission's "cluster method," allows the tester to get as close to the house as possible in order to obtain accurate readings. In addition, it requires five measurements to be taken, and these measurements may be statistically analyzed to give a highly accurate reading of the field strength at that location.

The industry methodology incorporates a modified version of the Commission's cluster method. It requires that a cluster of five measurements be taken "either (at the tester's option) (i) as close to the home as possible given safety and other constraints (probably in the driveway in most cases) or (ii) at the nearest public road from which measurements can be safely made," and it requires a "minimum distance between [the] five points small enough to make testing practical."¹⁸²

Testing Equipment. As discussed above, the Commission should require that measurements be taken using standardized, calibrated equipment that will replicate a homeowner's typical outdoor receiving antenna. Use of standardized, calibrated equipment ensures accurate results and is more efficient because it reduces the likelihood of challenges to the testing procedure. The industry methodology requires use of a "standard antenna—the Channel Master Model 3016 Antenna along with 50 feet of RG/6U cable, or such other standardized antenna as the parties may agree to."¹⁸³

Antenna Height. Using standard antenna heights is preferable to a fluctuating standard, such as taking measurements "five feet above the roof."¹⁸⁴ It may be difficult for technicians to calculate the height that is five feet above a homeowner's roof and to raise the testing antenna to that height particularly if the structure is more than two stories high. Moreover, use of a fluctuating

¹⁸² Agreement at Schedule 7, ¶ d.

¹⁸³ *Id.* ¶ b.

¹⁸⁴ Notice ¶ 20.

standard could lead to disputes over whether the antenna height was properly calculated.

The industry methodology provides that measurements for two story homes be taken using the Commission's standard antenna height of 30 feet but states that measurements for one-story homes may be taken using an antenna at 20 feet. The satellite carriers have already acknowledged that 20 feet is a reasonable antenna height for a single story home.¹⁸⁵

Antenna Orientation. Consistent with the Commission's existing rules and Commission and industry longstanding practice, the Agreement requires that "the antenna must be pointed in the direction in which the strongest signal is available from the station in question."¹⁸⁶ As discussed above, this practice is the only way to ensure an accurate result.

Loser Pays Provision. The industry methodology incorporates the "loser pays" provision found in the Act.¹⁸⁷ This provision caps reimbursements expenses at \$150 and requires payment to be made within 45 days.¹⁸⁸ The loser pays provision keeps parties intellectually honest by discouraging both stations and satellite companies from taking irresponsible positions under the Act.

Notice Provision. The industry methodology includes a notice provision which provides that the other side must be given 45 calendar days' written notice of the test and be permitted to attend.¹⁸⁹

¹⁸⁵ See Affidavit of Richard L. Biby in Support of PrimeTime 24's Motion for Clarification of Order Affirming in Part and Reversing in Part Magistrate Judge Johnson's Report and Recommendation, and Request for Hearing Prior to the Entry of Any Preliminary Injunction, *CBS, Inc. v. PrimeTime 24 Joint Venture*, Civil Action No. 96-3650-CIV-NESBITT (S.D. Fla., filed May 28, 1998), ¶ 5.

¹⁸⁶ Agreement at Schedule 7, ¶ b.

¹⁸⁷ See *id.* ¶ j.

¹⁸⁸ See *id.*

¹⁸⁹ See *id.* ¶ a.

This provision is necessary to guard against unscrupulous test practices. For example, a dishonest technician could deliberately use faulty equipment, search for locations with low field strength measurement values, or otherwise “rig” the test in order to skew the result. Moreover, allowing the parties to monitor the testing procedures will help ensure accurate results, and it will decrease the number of challenges made to test results.

In summary, should the Commission conclude that it has the authority to adopt a measurement methodology for determining signal strength at individual locations, then the Affiliate Associations recommend that the Commission refine its current method, as specified in 47 C.F.R. § 73.686, along the lines of the industry methodology detailed in the broadcasting industry’s agreement with PrimeStar and Netlink.

XI.
The Commission Cannot Ignore Or Abandon
The Act’s Core Objective Of
Preserving Local Broadcast Service

As the Commission recognizes in the *Notice*:

The network station compulsory licenses created by the Satellite Home Viewer Act are limited because Congress recognized the importance that the network-affiliate relationship plays in delivering free, over-the-air broadcasts to American families, and because of the value of localism in broadcasting. Localism, a principle underlying the broadcast service since the Radio Act of 1927, serves the public interest by making available to local citizens information of interest to the local community (e.g., local news, information on local weather, and information on community events). Congress was concerned that without copyright protection, the economic viability of local stations, specifically those affiliated with national broadcast networks, might be jeopardized, thus undermining one important

source of local information.¹⁹⁰

The importance of the network/affiliate relationship and localism to the preservation of the nation's free, over-the-air broadcasting service cannot be gainsaid.

A. The Act Itself Was Predicated On Protecting The Network/Affiliate Relationship And Promoting Localism

Congress was clear that it intended the Act to “respect[] the network/affiliate relationship and promote[] localism.”¹⁹¹ In the Committee Reports, Congress stated repeatedly its desire to protect the network/affiliate distribution system¹⁹² and to prevent disruption to the copyright licensing arrangements between networks and their affiliates.¹⁹³ The Act's legislative history makes plain Congress's appreciation of the historical and contemporary importance of the network/affiliate relationship and localism to the successful provision of free, over-the-air television to the American people:

The television network-affiliate distribution system involves a unique combination of national and local elements, which has evolved over a period of decades. The network provides the advantages of program acquisition or production and the sale of advertising on a national scale, as well as the special advantages flowing from the fact

¹⁹⁰ Notice ¶ 3. See also *id.* ¶ 15 (stating that “we recognize the important role that local broadcast stations play in their communities”); *id.* ¶ 36 (“We acknowledge and reiterate Congress’ decision in the SHVA to protect network-affiliate relationships and to foster localism in broadcasting. . . . [L]ocalism is central to our policies governing broadcasting and the obligation of broadcasters to serve the public interest.”).

¹⁹¹ H.R. Rep. No. 100-887, pt. 1, at 14 (1988).

¹⁹² See *id.* at 8; H.R. Rep. No. 100-887, pt. 2, at 19-20 (1988).

¹⁹³ See H.R. Rep. No. 100-887, pt. 1, at 15 (1988); H.R. Rep. No. 100-887, pt. 2, at 20 (1988). See also *Copyright Office Report* at 104 (“The legislative history of the 1988 Satellite Home Viewer Act is replete with Congressional endorsements of the network-affiliate relationship and the need for nonduplication protection.”)

that its service covers a wide range of programs throughout the broadcast day, which can be scheduled so as to maximize the attractiveness of the overall product. But while the network is typic[a]lly the largest single supplier of nationally produced programming for its affiliates, the affiliate also decides which network programs are locally broadcast; produces local news and other programs of special interest to its local audience, and creates an overall program schedule containing network, local and syndicated programming.

The Committee believes that historically and currently the network-affiliate partnership serves the broad public interest. It combines the efficiencies of national production, distribution and selling with a significant decentralization of control over the ultimate service to the public. It also provides a highly effective means whereby special strengths of national and local program service support each other. This method of reconciling the values served by both centralization and decentralization in television broadcast service has served the country well.¹⁹⁴

* * *

Free local over-the-air television stations continue to play an important role in providing the American people information and entertainment. The Committee is concerned that changes in technology, and accompanying changes in law and regulation, do not undermine the base of free local television service upon which the American people continue to rely. The Committee is concerned that retransmissions of broadcast television programming to home earth stations could violate the exclusive program contracts that have been purchased by local television stations. Depriving local stations of the ability to enforce their program contracts could cause an erosion of audiences for such local stations because their programming would no longer be unique and distinctive.¹⁹⁵

A number of the proposals contained in the *Notice*, including the proposal to redefine the meaning of Grade B signal intensity—all of which would shrink the copyright protections now provided by the Act for local stations—are at odds with the core principles of “localism” underlying

¹⁹⁴ H.R. Rep. No. 100-887, pt. 2, at 20 (1988).

¹⁹⁵ *Id.* at 26.

the Act.

B. Recent Supreme Court Jurisprudence Acknowledges The Vital Importance Of Free, Over-The-Air Television To The National Discourse

Congress has not been alone in recognizing the significance of the network/affiliate relationship and the principle of localism in broadcasting. Both the Supreme Court and the Commission have engaged in their own extensive analyses, which are considered in turn.

As the Court acknowledged in the two *Turner* must-carry cases,

In the Communications Act of 1934, Congress created a system of free broadcast service and directed that communications facilities be licensed across the country in a “fair, efficient, and equitable” manner. Congress designed this system of allocation to afford each community of appreciable size an over-the-air source of information and an outlet for exchange on matters of local concern. As we recognized in [*United States v.*] *Southwestern Cable*, [392 U.S. 157 (1968),] the *importance of local broadcasting outlets “can scarcely be exaggerated*, for broadcasting is demonstrably a principal source of information and entertainment for a great part of the Nation’s population.”¹⁹⁶

Although the *Turner* cases deal with a very different subject, much of the Court’s analyses of the principle of localism in broadcasting stands independently and provides instructive guidance in the current proceeding. As the Court understood in *Turner II*:

Simply put, a television station’s audience size directly translates into revenue—large audiences attract larger revenues, through the sale of advertising time. If a station is not carried on cable, and thereby loses a substantial portion of its audience, it will lose revenue. With less revenue, the station cannot serve its community as well. The station will have less money to invest in equipment and programming. The attractiveness of its programming will lessen, as will its audience.

¹⁹⁶ *Turner Broadcasting Sys. v. FCC*, 512 U.S. 622, 663 (1994) (“*Turner I*”) (emphasis added) (citations omitted); see also *Turner Broadcasting Sys. v. FCC*, 520 U.S. 180, 137 L. Ed. 2d 369, 388 (1997) (“*Turner II*”).

Revenues will continue to decline, and the cycle will repeat.¹⁹⁷

Indeed, what is ultimately at stake is the preservation of free television programming to the more than 30 percent of Americans who cannot afford to pay or elect not to pay for cable or satellite service.¹⁹⁸ Local broadcast television is “a vital part of the Nation’s communication system,”¹⁹⁹ which, “though it is but one of many means for communication, [has been] by tradition and use for decades now . . . an essential part of the national discourse on subjects across the whole broad spectrum of speech, thought, and expression,”²⁰⁰ must be protected “because ‘there is a substantial governmental interest in promoting the continued availability of such free television programming, especially for viewers who are unable to afford other means of receiving programming.’”²⁰¹

Satellite delivery of distant network signals (indeed, of any programming) is a luxury, not a necessity—and it is not a luxury that can be afforded by all. The *Turner* cases teach the importance of free, over-the-air local broadcasting to the national discourse and common culture, especially to those unable to afford subscription services. The Affiliate Associations are concerned lest the Commission rush to “protect” those relatively affluent consumers who may lose satellite delivery of duplicating distant network stations as a result of court injunctions enforcing the Act and forget the one third of Americans who cannot afford, or choose not, to subscribe to a pay TV service

¹⁹⁷ *Turner II*, 137 L. Ed. 2d at 399 (quoting favorably the explanation of a broadcast industry executive) (citation omitted). The economics are the same if the reduction in audience size results from a siphoning off of viewers to a distant network signal, delivered via satellite, of the same network as a substitute for local network service.

¹⁹⁸ *Cf. Turner I*, 512 U.S. at 646.

¹⁹⁹ *Id.*

²⁰⁰ *Turner II*, 137 L. Ed. 2d at 391.

²⁰¹ *Turner I*, 512 U.S. at 646 (citations omitted).

and who receive a national and local television service *free* from local stations.

C. The Commission's Prior Analyses, Which Repeatedly Emphasize The Need To Preserve The Principles Of Localism, Provide The Proper Historical Lens Through Which To Examine SHVA Issues

The Commission, too, has repeatedly recognized the significance of localism to the success of the American television broadcasting service, as well as the role that the network/affiliate relationship plays in that success. More than 30 years ago, in the infancy of cable, the Commission expressed concern that new technology could harm the predicate of free, over-the-air television service. From its inception, the nation's commercial television system has been based upon "the distribution of programs to the public through a multiplicity of local station outlets."²⁰² Indeed, the original NTSC Table of Allotments then, as well as the new DTV Table of Allotments now, "is predicated upon the social desirability of having a large number of local outlets with diversity of control over disseminating sources rather than a few stations serving vast areas and populations."²⁰³ Having east and west coast feeds of just a few distant network superstations delivered by satellite within local stations' natural markets tears at the heart of the Commission's allotment schemes. Local stations, unlike distant superstations, afford a unique "means for community self-expression. They provide programming designed to meet the particular tastes and needs of the public in their service areas, such as local news and public affairs, and are accountable to the Commission for

²⁰² Restrictions on Use of Microwave Relay Facilities to Carry Television Signals to Community Antenna Television Systems, *First Report and Order*, FCC 65-335, 4 Rad. Reg. 2d (P & F) 1725 (1965), ¶ 47.

²⁰³ *Id.* ¶ 46.

operations in the public interest.”²⁰⁴ Distant network superstations provide no local news and public affairs programming of any relevance to those outside their own local markets. By their very nature, they cannot do so since they are not a part of, and connected to, the distant communities. Distant network superstations are not a forum for local community self-expression, and they cannot provide information vital to the local community, including broadcasts of the Emergency Alert System; political debate, commentary, and advertising of central importance to local or even state-wide campaigns; and public service announcements of local charities, schools, and community service organizations.

For example, as part of their local missions, many stations have found it necessary to purchase state-of-the-art Doppler radar and other weather-related equipment. In the case of the representative network stations discussed above, it is critical for WNCN and WJHG-TV, Panama City, Florida, to be able to report on hurricanes; for KBMY to monitor blizzard conditions; and for WBMA and KBTX to track fast-appearing and fast-moving tornados. In each case, human lives may be at stake. Capital investments for such equipment can typically run into the hundreds of thousands of dollars for weather-reporting facilities alone. It is difficult to see how stations could fund such capital-intensive endeavors if they were to lose any fraction of the local advertising revenue that is potentially at stake due to duplicative network programming delivered via satellite. As viewers are siphoned off to satellite service, the harm to localism is doubly insidious, for not only will stations be less able to fund capital-intensive upgrades for local services such as emergency weather reporting, but viewers themselves will not be watching their local stations and thus may fail to see potentially life-saving local reports. Effective functioning of the Emergency Alert System would

²⁰⁴ *Id.* ¶ 45.

clearly be frustrated.

Moreover, weather-reporting is just one example of the many types of local service affiliates provide and of the obligations to which broadcasters are committed. In addition to weather equipment, local stations must make substantial investments to provide first-rate local news and public affairs programming. Many stations also own and maintain helicopters for traffic and emergency reporting. Perhaps most significantly, broadcasters are in the midst of transitioning to DTV. DTV upgrades, including new antennas and possibly new towers, as well as a host of other necessary equipment, will likely cost the average station millions of dollars. These funds must come directly from each station's bottom line; there is no short-term return on this investment. The Commission must examine the issue of how local affiliates will be able to invest such enormous sums—and why they should do so—if they are to be faced with ever shrinking audiences, and thus shrinking revenues, due to satellite carriers cherry-picking the market's most affluent viewers with duplicative distant network programming.

Were the Commission to shrink local affiliates' service areas, by any means—directly, by increasing the Grade B intensity values, or indirectly, by modifying the location, time, and confidence variability factors in the Longley-Rice model—the adverse economic effects on broadcasters are manifest. It would undermine the ability of local stations to serve as an outlet for community self-expression and as a source of vital information of local concern. The Commission is required by Section 307(b) of the Communications Act to preserve the principles of localism. A failure to do so will jeopardize the economic vitality and viability of an industry that has served the American people for more than half a century—and which today continues to serve one-third of those Americans exclusively.

Although the Affiliate Associations believe the Commission's ability to act in this

rulemaking proceeding is quite limited, to the extent the Commission does act, then its statutory duties require it to take affirmative measures to prevent the risk that satellite “competition will destroy or seriously degrade the service offered by a television broadcaster,”²⁰⁵ not the other way around. If satellite carriers should destroy local television broadcasting service, the public as a whole would lose far more than it would gain.²⁰⁶ Indeed, the Commission’s responsibilities, properly framed, would not be discharged appropriately were the Commission to withhold action that would help preserve “local” television service. As the Commission said in taking measures to protect local service from cable, the Commission cannot wait

until indisputable proof of irreparable damage to the public interest in television broadcasting has been compiled—i.e., by waiting “until the bodies pile up” before conceding that a problem exists. Our duty is “to encourage the larger and more effective use of radio in the public interest”—to ensure that all the people of the United States have the maximum feasible opportunity to enjoy the benefits of broadcasting service. To accomplish this goal, we must plan in advance of foreseeable events, instead of waiting to react to them.²⁰⁷

The theft of broadcasters’ intellectual property rights through massive violations of the Act has already resulted in the loss of viewers for local broadcasters—the bodies are already beginning to “pile up.” This is not to say that, by acting with the principal aim of protecting localism, the Commission would in any way ignore or denigrate the very real contribution which satellite service can make to the public interest. Such action would, instead, acknowledge, just as it did in the cable context, that satellite “serves the public interest when it acts as a *supplement* rather than a *substitute*

²⁰⁵ *Id.* ¶ 48.

²⁰⁶ *See id.*

²⁰⁷ *Id.*

for off-the-air television service.’’²⁰⁸

In the absence of program exclusivity, a single-channel video programming distributor—with a single, advertiser-supported revenue stream—would be at a hopeless competitive disadvantage against multi-channel video programmers with multiple revenue streams. The Commission’s early competitive analysis of the importation of distant duplicating network stations by cable is relevant today in the satellite context. The following analysis, which the Commission long ago made about cable, can now be made about satellite carriers. First, a satellite carrier, in providing duplicating network programming within a local station’s natural market, does not carry local stations—as a result, viewers to the distant network station are lost:

A gain of a subscriber to the [satellite] system will in most cases mean the effective loss of a potential viewer for the local station. This kind of barrier to competitive access is not created in the course of competition between television broadcasting stations.²⁰⁹

The very diversion that the Commission was concerned about in the cable context has already begun to happen across the country in the satellite context. Nielsen recently conducted a study of television households in Virginia and Tennessee markets to determine the number of households that watch distant network service via satellite, rather than their local affiliate stations. In the July 1998 ratings period, a whopping 18.15% of viewers in Harrisonburg watched distant network signals received via satellite instead of their local network affiliates. The figures in other markets are equally foreboding: 18.08% in Roanoke; 15.51% in Charlottesville; 12.20% in Richmond; 13.10% in the Bristol-Kingsport-Johnson City market; and 5.41% in Norfolk. These extremely high percentages bear no relation to the number of households that cannot receive their network stations

²⁰⁸ *Id.* (emphases added).

²⁰⁹ *Id.*

over-the-air. Even the lowest of these figures, 5.41% in Norfolk, is way out of proportion to the percentage of the population unable to pick up their local affiliates over-the-air. It is improbable to think that even in the Norfolk area, an extremely flat part of the state, such a sizeable percentage of the population cannot get adequate reception. The siphoning off of these large numbers of viewers will have immediate and long-lasting effects on local broadcasters. The nation's system of free, over-the-air local television cannot survive this steady drain.

The competitive harm to broadcast stations from the resulting loss of viewership is self-evident:

[I]n subjecting the local station to competition from additional program services, the [satellite provider] does not [fully] enter the market for programming, as would a competing broadcaster. . . . The station obtains the right to exhibit network programs by offering to the network attractive audience circulation, etc., and by giving up to the network a major portion of the compensation which the sponsor or participating advertiser pays for the use of the station's facilities in connection with that program.²¹⁰

The result is that the copyrights negotiated by networks and their local affiliates are devalued:

In dealing with program suppliers, stations usually obtain the exclusive right to exhibit programs within a particular geographical area and for a particular length of time. This exclusivity reflects, among other things, the judgment that duplication of the program within the station's market—either simultaneously or within some period of time—reduces the audience and value of the program to the station.

. . . The [satellite company] that provides its subscribers with the signals of distant stations presently stands outside the program distribution process [just] described. . . . It does not compete for network affiliation, nor for access to [certain] syndicated programs, feature films or sports events. It is not concerned with bidding against competing broadcasters for the right to exhibit these programs nor with bargaining with program suppliers for time and territorial

²¹⁰ *Id.* ¶ 52.

exclusivity.

This is not the usual competitive situation. The [satellite company] and the local broadcaster provide the public with access to the same basic product—the programs created or sold for distribution through broadcasting stations. The broadcaster, however, must himself obtain access to the product in the program distribution market, with its various restrictions and conditions. The [satellite] operator need not enter this market at all.²¹¹

As important as the preservation of localism is to a free, over-the-air television service, local affiliates, in turn, rely heavily on the symbiosis of the network/affiliate relationship. The Commission has long recognized the importance of the network/affiliate relationship and the efficiencies of that unique television program distribution system:

This longstanding arrangement enhances the value to affiliates of network programming and provides affiliates with incentives to promote that programming locally. In the absence of an exclusive distribution system, these incentives are attenuated because other distributors that did not share the cost of promotion would nevertheless benefit from it. In turn, prosperous affiliates benefit the network by providing popular local programming. Such programming not only enhances the network's reputation, but, via delivery of large "lead in" audiences for network programming, it increases network audiences and revenues.²¹²

While the network provides the advantages of program production and the sale of advertising on a national scale, the affiliate is more than a passive outlet for the network's programming—it provides local news, weather, public affairs programming, public service announcements, expensive syndicated programming, and other programming to create the total program schedule. Program exclusivity is an essential element in the mix because it increases the affiliate's resources and

²¹¹ *Id.* ¶¶ 53-55.

²¹² *Inquiry into the Scrambling of Satellite Television Signals and Access to those Signals by Owners of Home Satellite Dish Antennas, Report*, FCC 87-62, 62 Rad. Reg. 2d (P & F) 687 (1987), ¶ 159.

initiative to support and promote the network in competition against both other broadcast networks and other nationally-distributed services.²¹³

Satellite viewing of duplicating distant network signals in local markets perverts the system of free, over-the-air broadcasting that has developed over the decades. As the Commission, itself, has acknowledged:

The network-affiliate relationship plays an important role in supplying the public with television service. This system of distribution, which is based on program rights ownership and copyright protection, a system of exclusive broadcast outlets, and contractual relationships among the parties, is totally by-passed through the direct-to-home satellite distribution mechanism . . . which involves no contractual or consensual arrangement of any type with either the program owners, the networks, or the broadcast stations whose signal is used.²¹⁴

When the Commission re-introduced programming exclusivity in the cable and broadcasting industries in 1988, it developed an analytical framework that is equally critical for satellite carriers. The Commission's framework began by recognizing that, under conditions that would otherwise be competitive, "a regulatory framework that limits the ability of some competitors to compete on the same terms as other competitors introduces a bias into the market process. With this bias, success in the marketplace becomes an artifact of regulation rather than an indicator that the successful competitor is meeting consumer demands efficiently."²¹⁵ Thus, the Commission should not tilt the competitive playing field. By preserving the current limits of the Act's compulsory license, the Commission will not deprive any satellite subscriber of his or her programs but will instead

²¹³ *See id.*

²¹⁴ *Id.* ¶ 201.

²¹⁵ Program Exclusivity in the Cable and Broadcast Industries, *Report and Order*, FCC 88-180, 64 Rad. Reg. 2d (P & F) 1818 (1988), ¶ 4.

“preserve to local stations the credit to which they are entitled—in the eyes of the advertisers and the public—for *presenting programs for which they had bargained and paid* in the competitive program market.”²¹⁶

None of this is new. When satellite carriers retransmit distant network signals into the local service areas of affiliates, they divert the local broadcaster’s audience. As the Commission noted about cable, “[d]iversion imposes economic harm on local broadcasters that is the result of inequitable competitive rules rather than an inability to provide good service responsive to viewers’ wishes. A drop of even a single rating point may represent a loss of one-third to one-half of a broadcaster’s potential audience.”²¹⁷ When local viewers are thus diverted from their local stations to distant stations, “the ability of local advertisers as a group to make the best use of all available advertising media is reduced.”²¹⁸

In order for television programming to be produced, especially in a mix reflective of all viewers’ tastes, “program producers and distributors must be compensated in such a way that they will have incentives to produce the amount and types of programming that viewers desire.”²¹⁹ The Act’s compulsory license interferes with the competitive market; any change in the expectancies concerning exclusive rights for intellectual property will disrupt the market even further. Infringing upon the exclusivity rights of networks and affiliates beyond the limited terms of the Act’s narrow

²¹⁶ *Id.* (emphasis in original) (quoting Restrictions on Use of Microwave Relay Facilities to Carry Television Signals to Community Antenna Television Systems, *First Report and Order*, FCC 65-335, 38 FCC 683, 715, 4 Rad. Reg. 2d (P & F) 1725 (1965)).

²¹⁷ *Id.* ¶ 41.

²¹⁸ *Id.* ¶ 50.

²¹⁹ *Id.* ¶ 54.

license, therefore, will diminish the supply of programs and will unfairly handicap competition to meet viewer expectations for distribution of existing programming.²²⁰

Thus, just as the Commission cautioned in the cable context, there is a real danger that viewers will be

diverted from the broadcasters with whom the program suppliers have contracted for exhibition. The revenues earned by the producer of a program depend upon the advertising revenue the broadcaster of the program is able to garner on the basis of the program's attractiveness to viewers. Duplication of programming through [satellite] retransmission of distant signals breaks this link between the attractiveness of the program to viewers and the amount the program producer gets paid. When a [satellite] operator in market B retransmits the signal of a broadcast in distant market A, the total audience for the program may even grow, because there will be some new viewers to supplement the audience that has simply been diverted from local broadcaster B. . . . [But] this growth will not, however, translate into greater revenues for the program producer; it will be more likely to result in reduced revenues. . . . This reduction in revenues will occur because the loss of audience by broadcaster B will reduce the amount it is profitably able to pay for the program, while at the same time, advertisers in distant market A will attach little importance to the newly-attracted viewers in local market B. The result is too small an increase in revenues from distant broadcaster A to offset the loss of revenue from local broadcaster B. Thus, program suppliers face reduced incentives to expand and improve the supply of programming. . . .²²¹

The harm from improper intrusion into exclusivity is widespread, affecting program suppliers and local advertisers. Ultimately, however, the local broadcaster—and local viewers—are harmed the most. Even apart from its direct effect on station revenues and the ability to obtain programming, negotiated copyrights are essential to broadcasters by allowing them to create a distinctive public image, which helps them to attract local viewers. For example, the ability of a

²²⁰ *Cf. id.* ¶ 55.

²²¹ *Id.* ¶¶ 58-59.

local NBC affiliate to acquire a reputation as the only source of certain valued types of programming, such as “Friends,” “Frasier,” and “E.R.,” serves to alert viewers to the general attractiveness of the broadcaster’s whole range of programming selections.²²²

Although satellite operators pay compulsory license fees when they carry distant signals, these fees bear essentially no direct relationship to the value of the specific programs carried on distant signals. Satellite operators are thus permitted to take advantage of a twisted incentive system that does nothing but harm free, over-the-air local television service. The Commission’s conclusion in the directly analogous cable context is fully applicable here:

[D]istant stations will be carried as long as their value to the [satellite operator] exceeds the compulsory license fee, even if the value of these distant signals to viewers is less than the value of the alternative programs that [satellite operators] would carry if broadcasters could exercise exclusive rights, so that [satellite operators] would have to negotiate to obtain the right to show duplicative programming.²²³

The logic of the Commission’s prior analysis leads inexorably to the view that the Commission cannot abrogate its responsibilities to preserve the nation’s orderly system of local television service. Again, the Commission’s precedent provides an instructive guide:

Our country has made a substantial investment in free, local, over-the-air service that has and continues substantially to promote the public interest. From a regulatory standpoint, broadcasters are governed by unique regulatory mechanisms that are designed to ensure they will serve their communities of license. In short, the Communications Act and our regulations have held broadcasters to a standard of operating in the public interest, convenience and necessity, with obligations to serve their local communities. . . . In fulfilling our responsibility . . . , we believe the public interest requires that free, local, over-the-air broadcasting be given full opportunity to meet its public interest obligations. An essential

²²² See *id.* ¶ 61.

²²³ *Id.* ¶ 69.

element of this responsibility is to create a local television market that allows local broadcasters to compete fully and fairly with other marketplace participants. Promoting fair competition between free, over-the-air broadcasting and [satellite] helps ensure that local communities will be presented with the most attractive and diverse programming possible. Local broadcast signals make a significant contribution to this diverse mix. . . . [Alterations to] exclusivity protection [will] distort[] the local television market to the detriment of the viewing public especially those who do not subscribe to cable [and satellite]. Our regulatory scheme should not be structured so as to impair a local broadcaster's ability to compete, thereby hindering its ability to serve its community of license.²²⁴

Fewer viewers as a result of duplicative satellite programming directly translate into

- ▶ a loss of advertising revenue, the only means of support for local broadcasters;
- ▶ inefficiencies in the local advertising market;
- ▶ inefficiencies in the program supply and distribution markets, including a decrease in the diversity of programming;
- ▶ a break down of the network/affiliate symbiosis; and
- ▶ the inability of local broadcasters to cultivate a distinctive image.

In addition, the inability of local broadcasters to reach viewers tuned to duplicative network programming compromises or jeopardizes vitally important aspects of the public interest obligations of local broadcasters, including

- ▶ the dissemination of local news and weather;
- ▶ the effective functioning of the Emergency Alert System;
- ▶ community outreach through programming responsive to local concerns and needs;
- ▶ communication of political debate and commentary on issues of local concern, as well as political advertising for local and state-wide elections; and

²²⁴ *Id.* ¶¶ 73-74.

- ▶ broadcast of public service announcements of local charities, schools, and community service organizations, including local telethons, school closings, and food and blood drives.

Furthermore, a shrinking of local markets will ultimately

- ▶ undermine the predicate social desirability of having many, diverse, local outlets instead of a few national outlets; and
- ▶ create inconsistencies between the Commission's analog and digital service standards.

Finally, it is important to note that nothing in the Act, or the Commission's regulations, prevents satellite carriers from obtaining copyright licenses in the open market, just as the networks and affiliates do.

XII. The Satellite Industry Does Not Need And Should Not Be Given An Additional Copyright Subsidy

The satellite industry urges the Commission to weaken the Act's copyright protections for local stations to promote competition between the satellite and cable television industries.²²⁵

These arguments are misguided. First, although competition is an important goal in both telecommunications law and copyright law, satellite carriers misconstrue the fundamental nature of copyright law. Copyright law is designed to promote competition in the *creation* of original works, not to promote competition in *access* to copyrighted material. Second, the claim that satellite carriers cannot compete with cable is a myth. That claim is belied by the unprecedented consumer acceptance and the financial success the satellite industry is enjoying: Record-breaking subscription

²²⁵ See EchoStar Reply at 16-21.

levels and financial growth demonstrate, contrary to what it tells Congress and the Commission, that the satellite industry is a potent competitor to cable. Neither Congress nor the Commission should bend the copyright law or tilt it in favor of the satellite industry on the factually-unsupported argument that satellite carriers cannot effectively compete with cable.

A. The Satellite Carriers Have Misconstrued The Fundamental Nature Of Copyright Law

Unlike telecommunications law, the Constitution sets forth the purpose of copyright law, which is to “promote the Progress of Science and useful Arts.”²²⁶ To advance this goal, copyright law encourages competition in the independent creation of original works of authorship by granting limited monopolies to copyright holders.²²⁷ Any interpretation of a copyright statute that significantly harms the ability of copyright holders to control the use of their intellectual property would be contrary to the most basic objective of copyright law because it would discourage and impair competition in the creation of original creative works.

The satellite carriers’ claim that the Act should be construed to foster competition between satellite and cable is a bogus argument.²²⁸ In this context, the satellite carriers are not creating original works. Rather, satellite carriers are seeking to compete by simply rebroadcasting programming already created for, owned by, and licensed to others. The more the exclusive rights of copyright holders are derogated, the less incentive there is to create original works. Because the satellite carriers’ proposals to reduce basic copyright protections do not involve the creation of new

²²⁶ U.S. Const. art. I, § 8, cl. 8.

²²⁷ See, e.g., *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975).

²²⁸ See, e.g., EchoStar Reply at 17-20.

works and lessen the incentive for the creation of original works, their request undermines the fundamental competitive goal of copyright law to encourage the creation of original works. Although the satellite carriers ask the Commission to weaken core copyright protections to advance competition, their proposal is, in fact, at odds with that goal.

B. The Satellite Industry Can Compete Without Having The Commission Cripple Basic Copyright Protections

The satellite industry has proven, and continues to prove daily, its ability to effectively compete with cable. Claims by the satellite industry that it is unable to compete in the absence of a weakening of the copyright laws are contradicted by the unprecedented subscriber acceptance and economic success that the satellite industry is currently enjoying. The increase in satellite subscribership is directly attributable to the wealth of program services satellite carriers are able to provide.

When they are not talking to Congress or the Commission, the satellite companies boast about how fiercely competitive their services are with cable. Eddy Hartenstein, President of DirecTV, recently pointed out that “three-quarters of [DirecTV’s] new subscribers today come from cable-passed areas.”²²⁹ If 75% of viewers chose to subscribe to satellite service rather than cable service, how can anyone credibly contend that the satellite industry needs a government-granted copyright subsidy so it can become “competitive” with cable? Commenting on DirecTV’s ability to compete with cable, Mr. Hartenstein has predicted that “sometime in the first half of next year, [DirecTV will] have everyone save TCI and Time Warner [Cable] behind us. *We’re getting up into*

²²⁹ Monica Hogan, *DirecTV Picks Up 4 Millionth Sub*, Multichannel News, Sept. 21, 1998, at 8.

the rarefied air right now.”²³⁰

The satellite industry’s competitiveness derives from the multiplicity of services satellite carriers are able to provide. In addition to the traditional cable channels, satellite providers offer many channels and programming not available on cable. Indeed, the ability to receive more channels has been cited time and time again as the primary reason viewers subscribe to satellite services.²³¹ In a study commissioned by the Satellite Broadcasting and Communications Association (“SBCA”), 75% of DBS subscribers mentioned the ability to receive more channels as a reason, or the most important reason, to subscribe to a satellite service.²³² DirecTV has summarized its current ability to offer more channels and, thus, compete more effectively with cable as follows:

DirecTV has created a programming service specifically driven to offer consumers more choice and value for their entertainment dollar. DirecTV combines America’s favorite cable networks, other popular networks not available from most cable services, and pay per view movie service with up to 55 choices of movies and special events every night, and an unprecedented sports subscription lineup. *No other system offers as many quality program options.*²³³

Although EchoStar argues that not being able to retransmit network programming is detrimental to the satellite industry, the facts show that the overwhelming majority of satellite subscribers are able to receive broadcast network programming from a local station either over-the-air for free or by cable. According to a survey conducted for the SBCA by the Yankee Group, *only*

²³⁰ *Id.* (emphasis added).

²³¹ See *SBCA and the Yankee Group Announce Results of Important DTH Research Studies*, SBCA News Release, June 29, 1998 (visited Nov. 4, 1998) <<http://www.sbca.com/press/june29-98.htm>>.

²³² See *id.*

²³³ *How Does DirecTV Compare With Cable?*, DirecTV FAQ Answers, (visited Oct. 28, 1998) <http://www.directiv.com/sales/answer_service.html#email> (emphasis added).

*8% of households in highly competitive markets mentioned the absence of local channels as a factor in deciding not to subscribe to satellite service.*²³⁴ Similarly, another survey by the Strategis Group recently reported that “just 4% of cable subscribers who weren’t interested in DBS blamed lack of local programming.”²³⁵ Thus—by the satellite industry’s own account—between 92% to 96% of consumers surveyed say the absence of local broadcast network programming is not a factor in their decision whether to subscribe to satellite services. This information—taken from the satellite industry’s own trade association—demolishes the myth EchoStar and others have manufactured in an attempt to persuade Congress and the Commission to give the satellite industry special copyright privileges not available to others.

Moreover, when they are not talking to Congress or the Commission, the satellite companies cite the ability of households to receive network television free from a local station with an antenna as a selling point against cable. For example, a satellite industry trade journal recently told satellite carriers:

What consumers don’t understand is that antenna technology has improved dramatically over the years and TV stations’ signals are stronger than ever. Today’s antennas (you probably sell them in your store) are capable of bringing in a high quality signal for just about *every* urban or suburban homeowner. And it will almost always be a clearer, more stable, and more reliable signal than cable TV. This positive DSS selling point provides you with another opportunity to maximize customer satisfaction.²³⁶

²³⁴ See *SBCA and the Yankee Group Announce Results of Important DTH Research Studies*, SBCA News Release, June 29, 1998 (visited Nov. 4, 1998) <<http://www.sbca.com/press/june29-98.htm>>.

²³⁵ Communications Daily, July 24, 1998, p. 14.

²³⁶ Bob Shaw, *Customers Get Local Channels Free with Every DSS*, DSS Insider (Winter 1997), at 18.

EchoStar's primary competitor, DirecTV, urges its subscribers to "enjoy local channels and DirecTV too."²³⁷ DirecTV notes that with a new generation of off-air antennas, "consumers are realizing that the combination of a DSS system and an off-air antenna is *unbeatable*."²³⁸ Another DirecTV ad states, "You get more programming networks than most cable systems with great digital picture and sound from the mini-satellite dish service, as well as *free local programming from the TV antenna*."²³⁹ Indeed, a December 1, 1998 article in *The Wall Street Journal* titled "Antennae Attract Viewers To Satellite TV" points out how DirecTV and U.S. Satellite Broadcasting Co. ("USSB") have teamed up with Bell Atlantic to provide advanced over-the-air antennas to satellite subscribers. The following excerpts from the article are particularly pertinent:

Armies of door-to-door sales representatives are singing DBS's praises and offering turnkey satellite services, including powerful new antennae capable of tapping local TV channels with the mere zap of a remote control. "All you do is sit in your easy chair, hit the button, and you're off to the races," says Richard Belville, president of Bell Atlantic's video unit.

* * *

Most of the stainless steel antennae used by Bell Atlantic—shaped like arrows about half the length of a yardstick—are mounted on roofs or the sides of chimneys. Sometimes Bell Atlantic can install them in attics.

* * *

²³⁷ *Yes You Can! Enjoy Local Channels and DirecTV Too!*, DirecTV Press Announcement, (visited Dec. 9, 1998) <<http://www.directv.com/misc/yesyoucan3.html>> (attached as Exhibit 5).

²³⁸ *Id.* (emphasis added).

²³⁹ *Id.* (emphasis added). The text of this advertisement is attached as Exhibit 5. As another advertisement states: "With the touch of a button on your remote, you can switch over from the DSS system to your local stations Recent technology has made antenna quality better than ever. And remember, with an antenna, you get your local channels for free." See USSB Advertisement attached as Exhibit 6.

“The numbers speak for themselves,” says Jimmy Schaeffler, chairman of the Carmel Group, an industry consultant. DBS, he says, “is the fastest growing consumer-electronics product in history.”²⁴⁰

In addition, USSB has teamed with other industry groups to develop signal strength maps of all 211 television markets nationwide to assist customers in selecting the best type of antenna depending on their location.²⁴¹

If not being able to offer network service to subscribers who are not “unserved” under the Act was truly hurting the DBS industry, the number of DBS subscribers should have started to dip in August after the Miami court issued its preliminary injunction and national news services reported the decision. However, the satellite industry’s subscriber growth has continued to boom. For instance, during the month of August, DirecTV signed up 101,000 new subscribers and EchoStar signed up 73,000 new subscribers.²⁴² Subscriber growth continued during the month of September as DirecTV signed up 121,000 new subscribers and EchoStar signed up 81,000 new subscribers²⁴³; while during October, DirecTV added 107,000 subscribers and EchoStar added 100,000 subscribers.²⁴⁴

DirecTV has taken a number of steps to penetrate new markets, including working with homeowner associations, apartment complexes, and public, semi-public and private viewing

²⁴⁰ Leslie Cauley and Frederic M. Biddle, *Antennae Attract Viewers to Satellite TV*, Wall St. J., Dec. 1, 1998, at B1 (attached as Exhibit 7).

²⁴¹ See USSB Advertisement attached as Exhibit 8.

²⁴² See Monica Hogan, *DBS Sales Simmer Throughout Summer*, Multichannel News, Sept. 14, 1998.

²⁴³ See *DISH And DirecTV Report Solid September, PrimeStar Has Disappointing Month*, SkyReport.com, Oct. 8, 1998 (visited Nov. 4, 1998) <<http://www.skyreport.com/108dth.htm>>.

²⁴⁴ See *DirecTV, DISH Take DTH Pass 10 Million Mark*, SkyReport.com, Nov. 11, 1998.

establishments across the country.²⁴⁵ Indeed, a Dallas homeowners association recently voted to install a DirecTV programming service, noting, "We are delighted to be leading the movement toward all-digital satellite television communities. DirecTV offers association members outstanding value for their entertainment dollar."²⁴⁶ Moreover, DirecTV has announced expansion plans which include marketing and distribution agreements not only with Bell Atlantic, but with Southwestern Bell and GTE as well.²⁴⁷

EchoStar has recently announced an agreement to acquire the DBS orbital slot held by News Corp. and MCI Worldcom. EchoStar announced that it will offer consumers 300-channel and 500-channel program packages that will provide subscribers with local broadcast channels, multichannel pay-television services, near video-on-demand, HDTV, and high-speed Internet access services. The acquisition will more than double EchoStar's present 200 channels. A major benefit of the new services, according to EchoStar, is that it will enable it to offer a "one-dish solution" for the broadcast of both pay services and local broadcast stations.

DirecTV was reported just last week to be offering its subscribers in the Raleigh-Durham market a special price discount on outdoor antennae to facilitate reception of local stations.²⁴⁸ This

²⁴⁵ See *DirecTV Celebrates Four-Year Anniversary As Nation's Leading Digital Television Service*, DirecTV Press Announcement, June 17, 1998 <<http://www.directv.com/news/4yrann.html>> (visited Oct. 28, 1998).

²⁴⁶ See *Suburban Dallas Community Votes For a DirecTV Dish on Every Rooftop*, DirecTV Press Announcement, Aug. 31, 1998 (visited Dec. 9, 1998) <<http://www.directv.com/news/hackberry.html>>.

²⁴⁷ See *DirecTV Celebrates Four-Year Anniversary As Nation's Leading Digital Television Service*, DirecTV Press Announcement, June 17, 1998 (visited Oct. 28, 1998) <<http://www.directv.com/news/4yrann.html>> .

²⁴⁸ See *Satellite Business News*, Dec. 2, 1998 (attached as Exhibit 9).

marketing decision in the Raleigh-Durham market where PrimeTime 24's compulsory license to provide ABC Network programming was revoked reflects what the satellite industry can do to assure their subscribers will continue to have access to broadcast network service when the Act is enforced. Other satellite carriers will likely do the same if the Commission and Congress will not interfere and allow the existing law to work.

Comments filed with the Commission by satellite carriers during the Commission's 1998 Annual Assessment of the Status of Competition in the Markets for the Delivery of Video Programming reflect that DBS is experiencing unprecedented growth. The satellite trade association observed that for the 12-month period ending July 1, 1998, satellite subscribership increased by 2,050,953 subscribers, compared to the 1,993,539 subscribers gained during the same period last year.²⁴⁹ Significantly, DBS subscribership enjoyed a 43.73% increase during this same period.²⁵⁰ In October 1998, EchoStar added 100,000 customers, launching the satellite industry beyond the historically significant 10-million customer mark.²⁵¹ As of the end of October 1998, there were 10,044,463 satellite subscribers.²⁵² Financial experts forecast that there will be 18 million satellite

²⁴⁹ Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, *SBCA Comments*, Docket No. 98-102 (filed July 31, 1998) [hereinafter "SBCA Comments"], at 6.

²⁵⁰ *See id.* at 7.

²⁵¹ *See EchoStar Adds 100,000 Subscribers in October*, DISH Network Press Release (visited November 21, 1998) <<http://www.dishnetwork.com/profile/press/press/press150.htm>>; Monica Hogan, *Satellite Soars Past 10M Mark*, Multichannel News, Nov. 16, 1998, at 3 (attached as Exhibit 10).

²⁵² *See DirecTV, DISH Take DTH Pass 10 Million Mark*, SkyReport.com, Nov. 11, 1998.

subscribers by 2007,²⁵³ and one industry analyst predicted, “[t]here’s going to be some form of dish on probably 80% of the homes in America in 10 years, probably less.”²⁵⁴

Indeed, both EchoStar and DirecTV have reported record economic growth every month of this year,²⁵⁵ and the growth is predicted to continue at unprecedented rates. The positive economic forecast for the satellite industry is discussed in detail in the investment reports prepared by Morgan Stanley Dean Witter and attached as Exhibit 11.

For the first nine months of this year, EchoStar reported total revenue of \$696 million compared to the \$298 million for the corresponding period in 1997.²⁵⁶ This record economic growth is attributable to EchoStar’s addition of more than 227,000 subscribers in this year’s third quarter alone, for a cumulative total of more than 1.6 million subscribers.²⁵⁷ Among all of the satellite carriers, media investment analysts have made EchoStar their top choice.²⁵⁸

Likewise, DirecTV’s revenues for the third quarter of 1998 reflected a whopping 33.6% increase over last year’s third quarter revenues.²⁵⁹ DirecTV’s most recent milestone is reaching a

²⁵³ See Marc E. Nabi, *Satellite Communications: Getting Your Satellite Dish for Free*, Morgan Stanley Dean Witter, Oct. 14, 1998, at 57.

²⁵⁴ National Cable Television Association Comments, CS Docket No. 97-141, at 7 (citing *The Dish on Satellite TV*, San Francisco Examiner and Chronicle, Feb. 5, 1995).

²⁵⁵ See Price Colman, *Sky’s No Limit For SBCA*, Broadcasting and Cable, July 20, 1998, at 58.

²⁵⁶ See *EchoStar Reports Record Third Quarter Results*, DISH Network Press Release (visited Nov. 21, 1998) <<http://www.dishnetwork.com/profile/press/press/press151.htm>>.

²⁵⁷ See *id.*; see also Monica Hogan, *DBS Sales Simmer Throughout Summer*, Multichannel News, Sept. 14, 1998.

²⁵⁸ See *EchoStar Tops Analysis’ Lists*, Broadcasting & Cable, Sept. 21, 1998, at 83.

²⁵⁹ See *Hughes Electronics 2nd Quarter Earnings Release* (visited Sept. 18, 1998) (continued...)

cumulative subscriber base total of four million, a growth rate of more than *one million subscribers per year* since its launch in the fall of 1994.²⁶⁰ Were it a cable MSO, DirecTV would now be ranked *fifth* on the list of the nation's largest operators.²⁶¹ The suggestion the satellite industry makes that it is struggling to compete with cable is ludicrous.

Commenting on DirecTV's economic success, Eddy Hartenstein, president of DirecTV, recently stated, "DirecTV offers more programming choices and better customer service than . . . cable. That's why more and more consumers continue to free themselves from cable and choose DirecTV for their television entertainment."²⁶²

As noted earlier, one analyst recently observed that satellite service "'is the fastest-growing consumer-electronics product in history.'"²⁶³

Notwithstanding the satellite industry's claim to the contrary, the facts demonstrate that satellite carriers can compete and are competing effectively with the cable industry. Accordingly, the case has not and cannot be made by the satellite industry that it needs an additional copyright or regulatory subsidy from Congress or the Commission.

(...continued)

<http://www.hughes.com/earnings/98_earnings/98_qt2/98_qt2_release.html>.

²⁶⁰ See *DirecTV Hits 4 Million In Four Years*, SkyReport.com (visited Sept. 19, 1998) <<http://www.skyreport.com/918dtv.htm>>.

²⁶¹ See Cynthia Littleton, *DirecTV Hits 4 Million Subscribers*, Yahoo! News, Sept. 17, 1998 (visited Sept. 18, 1998) <[http://dailynews.yahoo.com/headlin . . . 80917/en/television-directv_1.html](http://dailynews.yahoo.com/headlin...80917/en/television-directv_1.html)>.

²⁶² *DirecTV Hits 4 Million In Four Years*, SkyReport.Com (visited Sept. 19, 1998) <<http://www.skyreport.com/918dtv.htm>>.

²⁶³ Leslie Cauley and Frederic M. Biddle, *Antennae Attract Viewers to Satellite TV*, Wall St. J., Dec. 1, 1998, at B1 (attached as Exhibit 7).

C. The Satellite Carriers Misconstrue The Difference Between The Regulatory And Copyright Schemes For Cable And Satellite

Satellite carriers have argued that cable's compulsory license²⁶⁴ is broader than that afforded satellite carriers by the Act²⁶⁵ because it allows cable companies to retransmit distant network signals to more households than the Act permits for satellite carriers. The argument ignores the differences between the interrelated regulatory and copyright scheme for cable systems and satellite carriers.

Unlike the compulsory license available to satellite companies, cable's compulsory license was designed to work in tandem with the cable regulatory policy scheme. Among these regulations are the Commission's must-carry, network nonduplication, and syndicated program exclusivity rules. The Commission does not impose similar regulations on satellite carriers. If the scope of the cable and satellite carriers' compulsory licenses are to be harmonized, then Congress and the Commission must fashion a comparable cable industry regulatory scheme for satellite carriers. Copyright parity with cable must be accompanied by regulatory parity.

Cable's regulatory scheme—unlike that of the satellite industry—is comprehensive—it encompasses federal, state, and local regulation. The Commission's must-carry rules require cable operators to carry the signals from virtually all local commercial and public broadcast stations that are within the same television market as a cable system.²⁶⁶ As the Copyright Office noted:

[T]he final formulation of the [cable compulsory] license was predicated on the FCC system of regulation for the cable

²⁶⁴ See 17 U.S.C. § 111.

²⁶⁵ See EchoStar Reply at 19 & n.49.

²⁶⁶ See 47 U.S.C. §§ 534, 535; 47 C.F.R. § 76.56.

industry²⁶⁷ [T]he operation of [the cable compulsory] license is hinged on the FCC rules regulating the cable industry. The whole concept of distant versus local signals, which forms the foundation of the royalty scheme, is tied to the concept of the must carry rules.²⁶⁸

Indeed, in designing the cable compulsory license, Congress recognized the significant “interplay between the copyright and communications elements of the [cable compulsory license].”²⁶⁹ Because Congress does not require satellite companies to carry local stations, the premise underlying the cable compulsory license is not applicable to satellite carriers.

Furthermore, the scope of cable’s compulsory license is not, as EchoStar claims, “broader”²⁷⁰ in scope as a practical matter than that afforded to satellite carriers. Cable systems are required to carry local network programming and, thus, have little incentive to carry duplicating distant network stations. Cable’s compulsory copyright is structured to replicate over-the-air viewing patterns. Thus, as a practical matter, cable systems typically do not carry distant duplicating network signals unless the signals are from nearby, over-shadowed markets and are “significantly viewed” over the air. Those signals are subject to cable’s compulsory copyright license and not subject to cable’s network nonduplication and syndex rules.²⁷¹ The point is that the scope of cable’s compulsory copyright license and network nonduplication rules was designed to work in concert with the intention to replicate local over-the-air viewing patterns.

²⁶⁷ U.S. Copyright Office, *Report on the Cable and Satellite Carrier Compulsory Licenses: An Overview and Analysis* (Mar. 1992), at 133.

²⁶⁸ *Id.* at 131.

²⁶⁹ H.R. Rep. No. 1476, at 89 (1976).

²⁷⁰ EchoStar Reply at 19 & n.49.

²⁷¹ *See* 47 C.F.R. § 76.54.

The Copyright Office expressly acknowledged last year that because satellite carriers do not, and are not required to, carry local stations, “the importation of distant network signals creates a greater potential for harm for broadcasters and copyright owners in the satellite context than it does in the cable context.”²⁷² Since cable is a localized service, cable can and must retransmit most local network stations to their subscribers. Satellite carriers, however, operate a nationwide service and are not currently required to retransmit local network affiliates to subscribers. Thus, the importation of a distant network station by a satellite carrier is offered as a substitute for—not a supplement to—local television service. The difference between merely *supplementing* local service and *substituting* for local service is significant.

In addition to the Commission’s must-carry, network nonduplication, and syndicated program exclusivity rules, there are a multitude of other cable laws and regulations that do not apply to satellite carriers:

- (1) political broadcasting regulations, which impose “equal time” and “lowest unit rate” obligations on cable²⁷³;
- (2) cross-ownership regulations, which bar simultaneous ownership of competing media interests in the same market²⁷⁴;
- (3) local franchise requirements, which require cable operators to obtain a local franchise as a condition of operation²⁷⁵;

²⁷² *Copyright Office Report* at 118.

²⁷³ *See* 47 C.F.R. §§ 76.206, 76.209.

²⁷⁴ *See id.* § 76.501.

²⁷⁵ *See* 47 U.S.C. § 541(b). The franchise requirement also permits localities to require cable operators to pay, in addition to other general taxes and fees, franchise fees of up to five percent of gross revenues. *See id.* § 542. Moreover, there is a renewal requirement which requires periodic renewal of a cable operator’s franchise. *See id.* § 546.

- (4) leased access regulations, which require cable operators to provide commercial channel capacity to competing programmers²⁷⁶;
- (5) “PEG” access requirements, which require cable operators, as part of their franchise, to provide free channels for use by local governments, educational authorities, and the public²⁷⁷;
- (6) programming access regulations, which require cable operators who have attributable interests in video programming that is transmitted via satellite to cable systems to make their programming available to all distributors on similar terms²⁷⁸;
- (7) the cable privacy law, which protects consumers against the misuse of customer-specific information by cable operators and includes annual notification requirements²⁷⁹;
- (8) the lockbox law, which requires cable operators to sell or lease devices that can be used to restrict the availability of particular program networks in the home during particular times²⁸⁰;
- (9) the authority of localities to impose taxes of general applicability on cable operators in addition to franchise fees²⁸¹;
- (10) rate regulation, which, for cable systems not subject to effective competition, limits rates for basic and cable programming service tiers, as well as equipment and service calls²⁸²;
- (11) the sports blackout requirement, which requires cable operators to black out the retransmission of certain televised sporting events at the

²⁷⁶ See *id.* § 532; 47 C.F.R. § 76.701.

²⁷⁷ See 47 U.S.C. § 531.

²⁷⁸ See 47 C.F.R. § 76.1002(b).

²⁷⁹ See 47 U.S.C. § 551.

²⁸⁰ See *id.* § 544(d)(2)(A).

²⁸¹ See *id.* § 542(g)(2)(A).

²⁸² See *id.* § 543; 47 C.F.R. §§ 76.900 to 76.987.

request of the home team²⁸³;

- (12) customer service requirements, which require cable operators to, among other things, maintain specified hours of operations and respond to customer calls within a certain number of hours²⁸⁴;
- (13) the equipment compatibility regulation, which requires compatibility between cable facilities and consumer electronics equipment²⁸⁵; and
- (14) the emergency alert requirements, which require the installation of extra equipment to alert viewers about local and national emergencies.²⁸⁶

Satellite carriers can operate without having to comply with any of these laws and regulations and, therefore, enjoy a substantial regulatory advantage over cable companies.

XIII. The Solution

The Commission should undertake efforts immediately to stop the defrauding of millions of innocent satellite subscribers. To that end, the Commission should issue letters of admonishment to satellite carrier licensees—or impose other appropriate sanctions to put an end to the satellite industry's unfair and deceptive trade practices.

Second, the Commission should recommend to Congress that legislation be enacted to require satellite carriers to disclose in bold and conspicuous type in all written, visual, and oral sales presentations the limitations of the statutory copyright license they hold. Full disclosure would

²⁸³ See 47 C.F.R. § 76.67.

²⁸⁴ See *id.* § 76.309.

²⁸⁵ See *id.* § 76.630.

²⁸⁶ See 47 U.S.C. § 544(g); 47 C.F.R. §§ 11.1 to 11.62.

eliminate the deception and fraud.

Third, the Commission should recommend to Congress that local-into-local legislation, with appropriate must-carry and retransmission consent provisions, be enacted with all due speed. When Congress adopted the Act in 1988, existing technology did not allow satellite carriers to offer local signals in local markets. However, it now appears that such technology is available, and it, apparently, will allow satellite retransmission of *all* local signals, not just those signals that are cherry-picked by the satellite carriers. Last year, Local TV on Satellite, LLC (“LTVS”) announced that it would distribute via satellite within each local market all over-the-air, full power commercial and noncommercial television stations located within the market.²⁸⁷ LTVS’s engineers have developed a technical plan that will use two satellites in the Ka-band with 61 spot beams covering the continental United States, Alaska, and Hawaii, with 159 regional uplink sites. This system will allow consumers to receive all the current DBS signals, as well as all local television signals, with one 24-inch dish. The LTVS plan is expected to accommodate 1700 NTSC signals, as well as high definition television prime time and special event network feeds.²⁸⁸

In addition, EchoStar recently announced a \$1.16 billion deal with News Corp. and MCI Worldcom that will give EchoStar a full continental U.S. satellite slot at 110 degrees west longitude.²⁸⁹ The acquisition will allow EchoStar to offer all local signals to its subscribers on a single dish. As one trade publication notes, “Beaming down signals from 110 and 119 degrees will

²⁸⁷ See Jim Goodman, *Why Local TV Via Satellite is Good For Everyone*, Multichannel News, June 15, 1998, at 69.

²⁸⁸ See *id.*

²⁸⁹ See *EchoStar/News Corp. Do \$1.16B DBS Deal*, Broadcasting & Cable TV Fax, Dec. 1, 1998; Leslie Cauley, *EchoStar to Buy Satellite-TV Assets of News Corp., MCI*, Wall St. J., Dec. 1, 1998, at B8.

allow EchoStar to offer many customers a one-dish local-into-local solution. . . .”²⁹⁰

Although the technology is available to provide local-into-local service, satellite carriers cannot proceed without congressional action. In the last session of Congress, legislation was introduced in the House that would amend the Act to permit satellite providers to distribute local television signals, including network programming, to their subscribers.²⁹¹ The legislation was never passed. The Affiliate Associations support local-into-local legislation and will work cooperatively with the Commission, the satellite industry, and Congress to expedite its enactment.

Fourth, the Commission, if it believes it necessary or appropriate, may recommend that Congress enact or authorize the Commission to adopt appropriate “presumptive” standards of service based on the Longley-Rice point-to-point methodology. An appropriate “presumptive” standard would minimize the number of homes for which site testing is likely to be necessary. Such a standard—coupled with (1) a loser pays mechanism for the cost of testing and (2) a reliable, yet cost-efficient, testing methodology that assures advance notice to each party and that should be modeled on the testing regime contained in the voluntary compliance agreement between PrimeStar, Netlink, and the broadcast industry—would eliminate much of the current “white area” controversy.

Finally, the marketplace itself, unless skewed by action taken by Congress or the Commission, will, in time, solve the local station reception problem. The genius of the marketplace

²⁹⁰ *EchoStar/News Corp. Do \$1.16B DBS Deal*, Broadcasting & Cable TV Fax, Dec. 1, 1998.

²⁹¹ On June 24, 1998, the House Commerce Committee reported favorably on H.R. 2921, styled the “Multichannel Video Competition and Consumer Protection Act of 1998.” See H.R. Rep. No. 105-661, pt. 1 (1998). An amended version of the same bill, styled the “Copyright Compulsory License Improvement Act of 1998,” was reported favorably by the House Judiciary Committee on August 4, 1998. See H.R. Rep. No. 105-661, pt. 2 (1998). The latter version of the bill was referred to the Committee of the Whole House in the State of the Union. 144 Cong. Rec. H7583 (Sept. 10, 1998).

should not be underestimated. The satellite and broadcast industries have confidence in the ability of new technologically-improved, attractive, over-the-air antennae to solve the reception issue. As noted earlier, DirecTV is making these new antennae available to satellite subscribers at highly discounted rates. This voluntary practice should not be discouraged. Regulatory action by the Commission that might create disincentives for or minimize the use of antennae should be avoided. Some consumers elect to receive local television stations by cable television, and regulatory actions should not be taken to discourage consumers from exercising that reception option. In short, the Commission should refrain from any action that might unwittingly interfere with the consumer choice of how best to receive local stations.

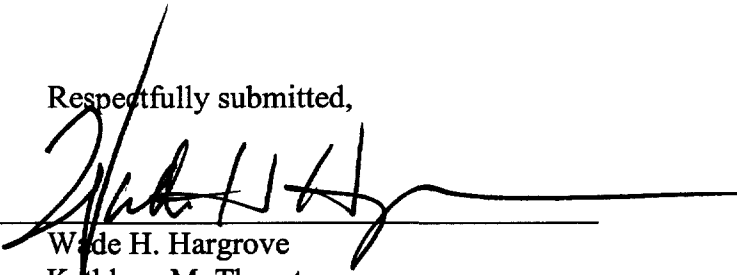
Until broadcast stations began to enforce the Act and protect their copyrights, satellite carriers had no real incentive to solve the local reception issue. Now they do. Unless the Commission removes that incentive, the satellite industry will find a solution—and it will be vastly more efficient for consumers than any regulatory solution Congress or the Commission could craft.

XIV. Conclusion

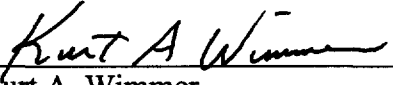
Whatever action, if any, the Commission may take, it must be consistent with the Satellite Home Viewer Act's core objective of protecting the integrity of the copyright each local network station now has for the delivery of its network's programming within its Grade B service area.

Respectfully submitted,

By


Wade H. Hargrove
Kathleen M. Thornton
David Kushner
BROOKS, PIERCE, McLENDON,
HUMPHREY & LEONARD, L.L.P.
First Union Capitol Center
Suite 1600 (27601)
Post Office Box 1800
Raleigh, North Carolina 27602
Telephone: (919) 839-0300
*Counsel for the ABC Television
Affiliates Association and the
Fox Television Affiliates Association*

By


Kurt A. Wimmer
Erin M. Egan
COVINGTON & BURLING
1201 Pennsylvania Avenue, N.W. (20004)
Post Office Box 7566
Washington, D.C. 20044-7566
Telephone: (202) 662-6000
*Counsel for the CBS Television
Network Affiliates Association*

By


Antoinette Cook Bush
David H. Pawlik
SKADDEN ARPS SLATE
MEAGHER & FLOM
1440 New York Avenue, N.W.
Washington, D.C. 20005-2111
Telephone: (202) 371-7000
*Counsel for the NBC Television
Affiliates Association*

December 11, 1998

Declaration of William R. Meintel

I, William R. Meintel, hereby declare as follows:

1. I am William R. Meintel, President of TechWare, Inc.
2. I hold a BS degree in electrical engineering and have over 29 years experience in the communications field. I completed a 20-year career with the Federal Communications Commission (FCC) where I held a number of engineering positions. In addition to serving as a field engineer for the FCC, I spent the last 10-years of my FCC career in the Mass Media Bureau's Policy and Rules Division. While there, I served as the Division computer expert in addition to my engineering responsibilities that included extensive involvement in a number of complex domestic and international spectrum planning matters.
3. Since entering private practice in 1989, I have been heavily involved in spectrum planning for the broadcast industry. During that period I co-authored a report for the NAB on spectrum requirements for Digital Audio Broadcasting (DAB), created a plan for independent television broadcasting for Romania and have been extensively involved in spectrum planning for digital television (DTV). My involvement in DTV has included the development of the sophisticated computer models used by both the broadcast industry and the FCC for DTV planning as well as serving as a technical consultant to the broadcast industry. In addition to providing technical consulting services to a number of individual domestic clients, I also have been contracted by the Brazilian Association of Broadcasters to provide DTV planning software and technical consulting services to assist Brazilian DTV spectrum planning. I have also authored a number of papers and articles and made numerous presentations on subjects related to spectrum planning.
4. I prepared the accompanying engineering statement at the request of the Television Affiliates Associations for use by the Television Affiliates Associations in response to the Notice of Proposed Rule Making, FCC 98-302, released November 17, 1998, in the matter of Satellite Delivery of Network Signals to Unserved Households for Purposes of the Satellite Home Viewer Act.
5. The engineering statement is true and correct to the best of my information, knowledge, and belief.

This the 10th day of December, 1998.


William R. Meintel

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Satellite Delivery of Network Signals to)	CS Docket No. 98-201
Unserved Households for Purposes of the)	RM No. 9335
Satellite Home Viewer Act)	RM No. 9345
)	
Part 73 Definition and Measurement of)	
Signals of Grade B Intensity)	

ENGINEERING STATEMENT OF WILLIAM R. MEINTEL

I have prepared this Engineering Statement on behalf of the Television Network Affiliate Associations, representing the ABC Television Affiliates Association, the CBS Television Network Affiliates Association, the Fox Television Affiliates Association, and the NBC Television Affiliates Association, in support of the Affiliate Associations' Comments in the above-captioned proceeding. I hold an engineering degree, possess more than 29 years of experience in the communications field, and previously worked for the Federal Communications Commission for 20 years. I have been extensively involved in spectrum planning for DTV and have special expertise in sophisticated computer models, including the Longley-Rice Irregular Terrain Model.

What Predicted Grade B Service Is

The Grade B service contours for television broadcasting were established by the Federal Communications Commission in the "Third Report" of the proceeding

to establish Engineering Standards for the Television Broadcast Service. This report was adopted on March 21, 1951, and was referenced in the "Sixth Report" adopted April 11, 1952. Those actions by the Commission set median field strength levels of 47, 56, and 64 dB above 1 μ Volt/meter as the Grade B signal levels for the Low VHF, High VHF, and UHF bands, respectively. The Sixth Report states that a contour defined by these levels was designed to provide acceptable service, as determined by the median observer, being received at least 90% of the time at the best 50% of the locations along the contour. The Commission, in arriving at these values, took into consideration a number of planning factors that are discussed below.

Explanation of Grade B Planning Factors

Various factors went into the definition of Grade B service and each will be addressed separately, followed by a discussion of how they are combined to arrive at the specific Grade B levels.

Acceptable Picture Quality or Quality of Service. In the Third Report, the Commission determined that a signal-to-noise ratio of 30 dB would be sufficient to provide a picture of acceptable quality. Subsequently, this 30 dB figure was confirmed by the Television Allocation Study Organization (TASO) in Engineering Aspects of Television Allocations, Report of the Television Allocation Study Organization to the Federal Communications Commission (Mar. 16, 1959). In the late 1950s, TASO conducted television viewer tests wherein a large number of observers rated picture quality on a scale of 1 to 6. These tests were conducted

under tightly controlled and supervised conditions in an effort to eliminate personal viewer bias. Approximately 38,000 individual assessments of picture quality were made. The observers viewed pictures with varying signal-to-interference ratios and were asked to rate the picture quality on the basis of the following scale:

- 1 = Excellent
- 2 = Fine
- 3 = Passable
- 4 = Marginal
- 5 = Inferior
- 6 = Unusable

As a result of these tests, TASO essentially confirmed that, with the Commission's earlier ratio of 30 dB signal-to-interference, the median observer would rate the picture quality as no less than passable or a TASO Grade 3. In the absence of interference, this ratio would become the level of signal-to-noise. The passable or TASO Grade 3 picture was defined as follows: "The picture is of acceptable quality. Interference is not objectionable."

Dipole Factor. The so-called "dipole factor" provides the relationship to frequency of the voltage across a 300 ohm load at the terminals of a dipole antenna for a given field strength. The voltage (V) across the terminals of a half wavelength dipole antenna in the presence of field (E) is:

$$V = \lambda \times E / 2\pi \text{ where } \lambda \text{ is the wavelength in meters}$$

$$\lambda = 300 / \text{Frequency in MHz}$$

Since the impedance of the dipole antenna is approximately 73.5 ohms, the above formula must be adjusted to take into consideration the 300 ohm input to the television receiver. Thus

$$\text{Voltage} = 300 \times E / 2\pi \times F_{\text{MHz}} \sqrt{(300 / 73.5)} = E \times 96.5 / F_{\text{MHz}}$$

The dipole factor is the term “96.5/F_{MHz}”. Although this term is not a true ratio, since it is customary to express the other items of the planning factors in terms of decibels, the term is expressed as

$$20 \times \log 96.5 / F_{\text{MHz}}$$

For allocation purposes, the Commission substituted the geometric mean frequency for each band in place of the F_{MHz} in the above and rounded off the results so that the dipole factors are:

Low VHF	=	20 × log (96.5 / 69)	=	3 dB
High VHF	=	20 × log (96.5 / 194)	=	- 6 dB
UHF	=	20 × log (96.5 / 645)	=	-16 dB

Antenna Gain. The antenna gain is expressed in dB above that which would be realized with a half wavelength dipole antenna. The values used for planning purposes were those determined to be typical of an antenna at that time, circa 1950. Those values were:

Low VHF	=	6 dB
High VHF	=	6 dB
UHF	=	13 dB

Transmission Line Loss. This term includes any losses in the transmission system between the antenna terminals and the input to the receiver and is expressed in decibels. The values used in planning the service were for 50 feet of 300-ohm twinlead and were determined to be:

Low VHF	=	1 dB
High VHF	=	2 dB
UHF	=	5 dB

Thermal Noise. The random motion of the molecules in system components

causes thermal noise. It is independent of frequency and proportional to temperature, the resistance across which it is produced, and the bandwidth. The thermal noise at the 300 ohm input of an ideal receiver, assuming a matched load, is given by:

Thermal noise power = $k \times T \times B$ where

k = Boltzmann's constant (1.38×10^{-23} joule/°K)

T = room temperature in °K (degrees Kelvin) (290)

B = the bandwidth in Hertz (4×10^6 Hz)

Inserting the above values yields the thermal noise power = 1.6×10^{-14}

Therefore the thermal noise voltage at 300 ohms is:

$$V = \sqrt{(1.6 \times 10^{-14} \times 300)} = 2.2 \mu\text{V} \approx 7 \text{ dB above } 1 \mu\text{V}$$

Receiver Noise. This is a measure of how an actual receiver compares to the ideal receiver whose noise is described by thermal noise. The receiver noise values were derived from tests on a number of receivers and were determined to be 12 dB for VHF and 15 dB for UHF. This means that the receivers generated this many more decibels of noise than the ideal receiver.

Manmade Noise. This is noise generated by various sources, such as power distribution systems, industrial equipment, etc. For the rural area in which the Grade B contour is expected to occur, the manmade noise was assumed to be 0 dB for the frequencies used for the television service. In designing the *Grade A* service standards, manmade noise was accounted for, and margins of 14 dB for low VHF and 7 dB for high VHF were added for such environmental noise. External noise is not a factor for UHF.

Time Fading and Terrain Factors. These two factors involve the well-known

fact that field strength in the VHF and UHF bands varies with both time and location. From the collection of a large amount of empirical data gathered over a long period of time it has been possible to chart these variations. Time fading is due to the ever-changing nature of the atmosphere, whereas the terrain factor, or location variability, is related to the physical impediments that are encountered between the transmitting and receiving locations. It should be pointed out that although time fading is due to the changing nature of the atmosphere, the changes occur slowly and are principally seasonal and annual. One should also note that location variability, although related to the specific terrain elevation points along the path between the transmit and receive points, also includes other less obvious factors.

It has been found that the location variations increase with frequency, as well as with more rugged terrain. It has also been determined that these variations follow a pattern and can be predicted with reasonable accuracy. A chart of these variations in dB's by percentage of receive locations is shown in Figure 1. Since the Grade B service is defined as being for 50 percent of the locations (the median), the location variability factor as read from Figure 1 is 0 dB.

Because Grade B intensity values were designed so that an acceptable picture was expected to be received at least 90% of the time, an adjustment was made to the median values to reflect this in the planning factors. This adjustment is the time fading factor, and it is the difference between the field value expected 50% of the time and that expected 90% of the time. The Commission's Rules have never included the F(50/90) curves; however, they can be derived from the F(50/50) and F(50/10) curves since the values are as much below the F(50/50) curves as the

F(50/10) curves are above. In other words, the time fading follows a normal or Gaussian type of distribution with the variation being symmetrical about the median. (Copies of the curves from the Third Report are provided in Figures 2 through 6.) Although the difference increases with distance, the values used by the Commission are those that would be typical for the distances involved.

To arrive at the F(50/50) value that can be related to providing service on a F(50/90) basis, the various factors discussed above and shown in the table below are summed.

Summary of Grade B Planning Factors

	Low VHF	High VHF	UHF	Units
Thermal Noise	7	7	7	dB
Receiver Noise	12	12	15	dB
Signal/Noise Ratio	30	30	30	dB
Line Loss	1	2	5	dB
Receive Antenna Gain	-6	-6	-13	dB
Dipole Factor	-3	6	16	dB
Manmade Noise	0	0	0	dB
Terrain Factor	0	0	0	dB
Time Fading Factor	6	5	4	dB
Total	47	56	64	dBμ

The above shows a table of losses (gains noted by negative numbers); therefore, the total indicates the F(50/50) value required to provide the desired level of service. The reader should keep in mind that the line in the table given as the time fading factor adjusts the result to provide for service on the basis of 90% of the time at 50% of the locations.

The above table was developed based on data available around 1950. In 1977, the FCC's Research and Standards Division of the Office of the Chief

Engineer reviewed the planning factors and prepared a report titled "A Review of the Technical Planning Factors for VHF Television Service." The report indicates that receiver noise, as documented in a Hazeltine Research Report, had improved by 6 dB for low VHF channels and by 5 dB for high VHF channels over that used in the initial planning factors. On the other hand, the report shows that revised time fading statistics indicate about a 1-dB increase in that parameter. This revision was justified because, in the 1977 study, the transmitting antenna's height was assumed to be 1000 feet instead of the 500 feet assumed in 1951, placing the Grade B contour at a greater distance. The only other parameter that was revised in that report was the line loss that was increased by 1 dB. However, work done in conjunction with the DTV proceeding indicates that the earlier values for line loss were correct. In view of this, and considering further likely improvements in receiver noise over the past two decades, as well as their applicability to UHF, the result is that the Grade B signal level values should be reduced by approximately 5 dB or 6 dB. This would mean that the new values would be 41 dB μ for low VHF, and 50 dB μ for high VHF, and 58 dB μ for UHF. In view of this, retaining the previously determined values of 47 dB μ , 56 dB μ , and 64 dB μ means that service based on these values is statistically better than the best 50% of locations receiving an acceptable picture at least 90% of the time at the edge of the contour.

It is also important to note that the time fading parameters used in the planning factors are for a particular antenna height and distance (assumed to be the edge of the service area). Time fading is a function of distance such that the shorter the distance, the less the time fading. In view of this, if a particular location being

evaluated is at a distance from the transmitter that is different than that assumed in the planning factors, then the real time fading value at that location will not be the same as that used in the planning factors. In the typical case where the location is inside the normally predicted Grade B contour, time fading is therefore likely to be less than that used in the planning factors. In other words, the statistical probability of service will actually exceed that defined for Grade B. Likewise, a station whose predicted F(50/50) service contour is smaller than the standard contour assumed for the planning factors will also have a greater probability of providing Grade B service even at the edge of its contour. In addition, at distances where median signal strength is greater than Grade B, the location probability for receiving at least Grade B is greater than 50%.

A review of several stations indicates that, based on the parameters in the 1977 FCC/OCE Report, all of them exceeded the actual required field to provide Grade B service at the location of their normally predicted Grade B contour.

The only parameter in the planning factors that was questioned, but left unchanged, in the 1977 FCC/OCE Report was manmade noise. Although it can be argued that some once rural areas are now more densely populated, that does not necessarily mean that the noise level at the edge of the contour has increased. And, if the noise has increased in the previously rural areas outside the Grade A contour it should be kept in mind that the signal level is still above the Grade B level until the edge of the contour is reached. In addition, it should also be noted that predictions based on the Longley-Rice propagation model indicate that, in many situations, the field intensity is above the Grade B level even at the normally

predicted Grade B contour. Moreover, one should also consider that many of the sources of manmade noise are likely to be less noisy today than 20 years ago, due both to better technology and to the recognition of their interference potential. In short, the Grade A standards properly take account of manmade noise for VHF frequencies; there appears to be no reason to assume that the Grade B service standards need to be changed in this regard.

What Predicted Grade B Service Is Not

Any change in the time and location factors used to determine the Grade B service values would result in some new Grade of service such as Grade X, since predicted Grade B is defined as the service expected at least 90% of the time at the best 50% of the locations. Likewise, changing the variability factors in a predictive model such as Longley-Rice is essentially the same as changing the values used to define the service. For example, using the Longley-Rice model to predict where the signal level is at or above the current Grade B values with a location variability factor of 70% (instead of 50%) does **not** predict the locations where the service is at or above Grade B (or even where the service is at or above Grade A in this example).

Effects of Changing the Grade B Signal Level Values

The effect of increasing the Grade B signal level values for analog television would, of course, depend on the level of increase. The immediate technical impact can be predicted with reasonable accuracy using available predictive models. An

analysis using such a model would show the predicted reduction in each station's predicted "service area." However, changing the levels would not, of course, require any changes in the station's technical operation, it would only mean that a signal level produced at certain locations would no longer be considered strong enough to provide service. The real effects of such a change would be in various areas that, although related to technical parameters, are to a large extent non-technical. Issues such as the definition of an unserved household in the SHVA, the size of a station's market for advertising purposes, the area protected from interference from other television stations as well as other radio services, its DTV service area, etc., are where the real impact would be felt.

Furthermore, the DTV system was designed to provide service replication based on the understanding that analog service is provided to locations receiving a Grade B signal. If those areas are now deemed as unserved for NTSC purposes, then the question arises as to whether they would also be considered as unserved for DTV purposes. The potential reduction in DTV service area would very likely cause considerable delay in DTV implementation.

Use of Predictive Models

The use of predictive models has always played a major role in terrestrial television broadcasting. The familiar F(50/50) curves are used to predict the location of the Grade A and B contours, and, in the recent DTV proceeding, the Longley-Rice model played a crucial role in developing the DTV allotment plan. In addition, the FCC now requires that the Longley-Rice model be used to evaluate

proposed changes in either analog or digital stations. Although predictive models are never as accurate as an actual measurement, they can serve as a useful administrative tool where a decision needs to be made as to whether an actual measurement is likely or not likely to be necessary.

The Longley-Rice model used in point-to-point mode, as was the case in the DTV analysis work, provides a result that would be appropriate for evaluation of individual locations for SHVA purposes. In addition, enhancements could be made to the existing software to provide more accurate evaluations of individual locations. Enhancements, such as the finer resolution terrain data that is becoming available, smaller increments for path elevation profiles, and geocoding, would in many cases provide an improved estimate of the field strength at an individual location.

Measurement Procedures

Provided an individual's home is located reasonably near a road, then the current measurement method is adequate. A 100 foot run with an antenna 30 feet above the ground in front of the home should be sufficient to determine if a Grade B signal is present. Likewise, cluster measurements for situations where it is not practical to make a 100 foot run is also a valid method. Although it may be that some slight adjustments to these procedures are necessary for SHVA purposes, the Commission must maintain the integrity of any formal measurement procedure. Any procedure, if it is to be technically reliable, must have a sound engineering basis and be well defined so that it is repeatable and, thus, subject to evaluation and confirmation.

In addition to a proper measurement procedure, a method needs to be devised to ensure the objectivity and accuracy of any signal strength test. There are at least two methods of insuring honesty. One method would be for the parties involved to agree on an independent third party to perform the test. Another method would be to require that the party performing the measurement notify the other party with sufficient notice so that the other party would have the opportunity to observe the test.

It is possible to use a combination of predictive methods, simple measurement techniques, and observations to determine which locations are likely to be proven as either served or unserved. Also, in any particular area, experience will be gained as more evaluations are made, allowing for better and better predictions. This, in combination with a "loser pays" system, could serve to reduce the number of measurements that would be needed.

The use of a single measurement would constitute neither good engineering practice nor a reliable method for determining service. Likewise, performing measurements with an antenna at less than 30 feet above the ground would not comply with the concept on which existing service is based, although performing measurements with an antenna at 20 feet above the ground in the case of certain single story homes would provide some indication of reception received at that location. As stated above, the measurement procedure must be well defined and must be applied in a uniform manner.

In any measurement or evaluation, the soundness of the equipment is paramount. For a formal measurement, the equipment should be of a type normally

employed for making measurements that would be submitted to the Commission for purposes described in the Commission's Rules in Section 73.686. For such submissions, the equipment should be calibrated at an interval recommended by the manufacturer. However, even in cases where the evaluation is only to decide the need for a formal measurement, the results will obviously only be useful if the equipment can be considered reliable. This is true even if the equipment in question is a home television installation.

Although signal levels vary with time and location, a proper measurement made at a site should provide an adequate evaluation of the ability to receive a Grade B level signal. Since time variability factors have already been included in the planning factors, there is no need to make further adjustments to compensate for variations that occur over time. In fact, to do so would, in effect, be just another way to increase, inappropriately, the signal intensity values that comprise Grade B service.

Antenna Installations

What constitutes a "conventional outdoor rooftop receiving antenna" may vary depending on the particular situation. As the signal becomes weaker as one moves farther from the transmitter, the antenna system must be improved to provide sufficient signal to the television receiver. A larger antenna provides greater gain; a greater height of the antenna also increases reception. In addition, placing the antenna outside reduces losses that may be encountered due to the materials used in the building, as well as reducing interaction between the antenna and its

surroundings. Interaction of the antenna with its surroundings can decrease its effectiveness, as well as create ghosts due to reflection of the signal from nearby objects. In some locations, the viewer may desire to receive stations that are widely separated from one another thus requiring either a method to rotate the antenna or multiple antennas pointed in different directions. Whether the viewer chooses to provide such necessary equipment is not relevant to the Commission's standard engineering practice, from which there is no reasonable technical reason to deviate, requiring that the test antenna always be oriented to receive the strongest signal strength.

The television system in the United States was created based on specific signal levels determined to provide adequate service using a practical antenna system. Had those who planned this service 50 years ago believed that acceptable service could not be provided to those willing to install a reasonable and practical antenna system, then they would have adopted a different set of service criteria. Furthermore, had it not been judged by the public as a practical system, it would not have achieved widespread acceptance, and changes would have been made to correct any inadequacies long ago.

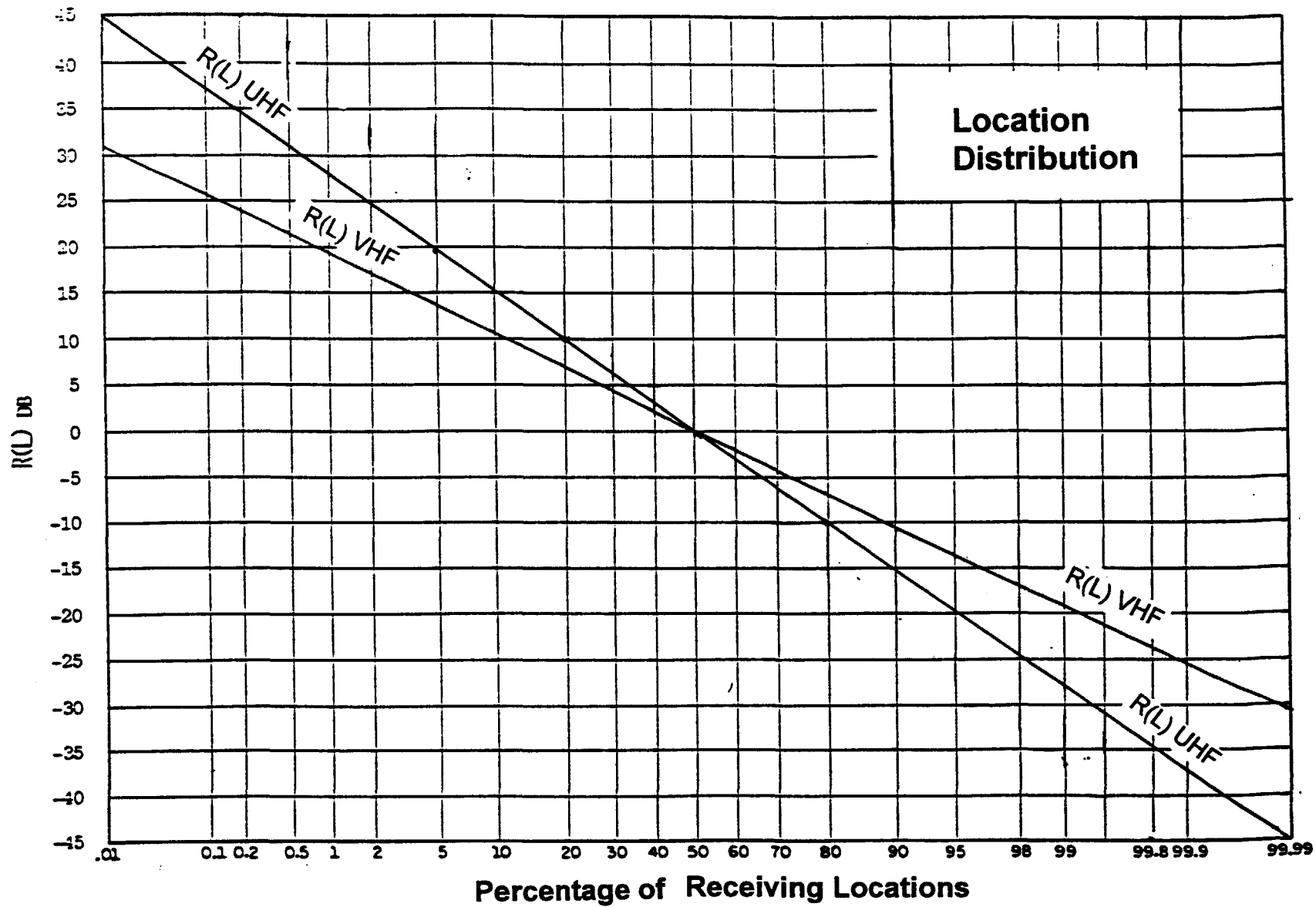
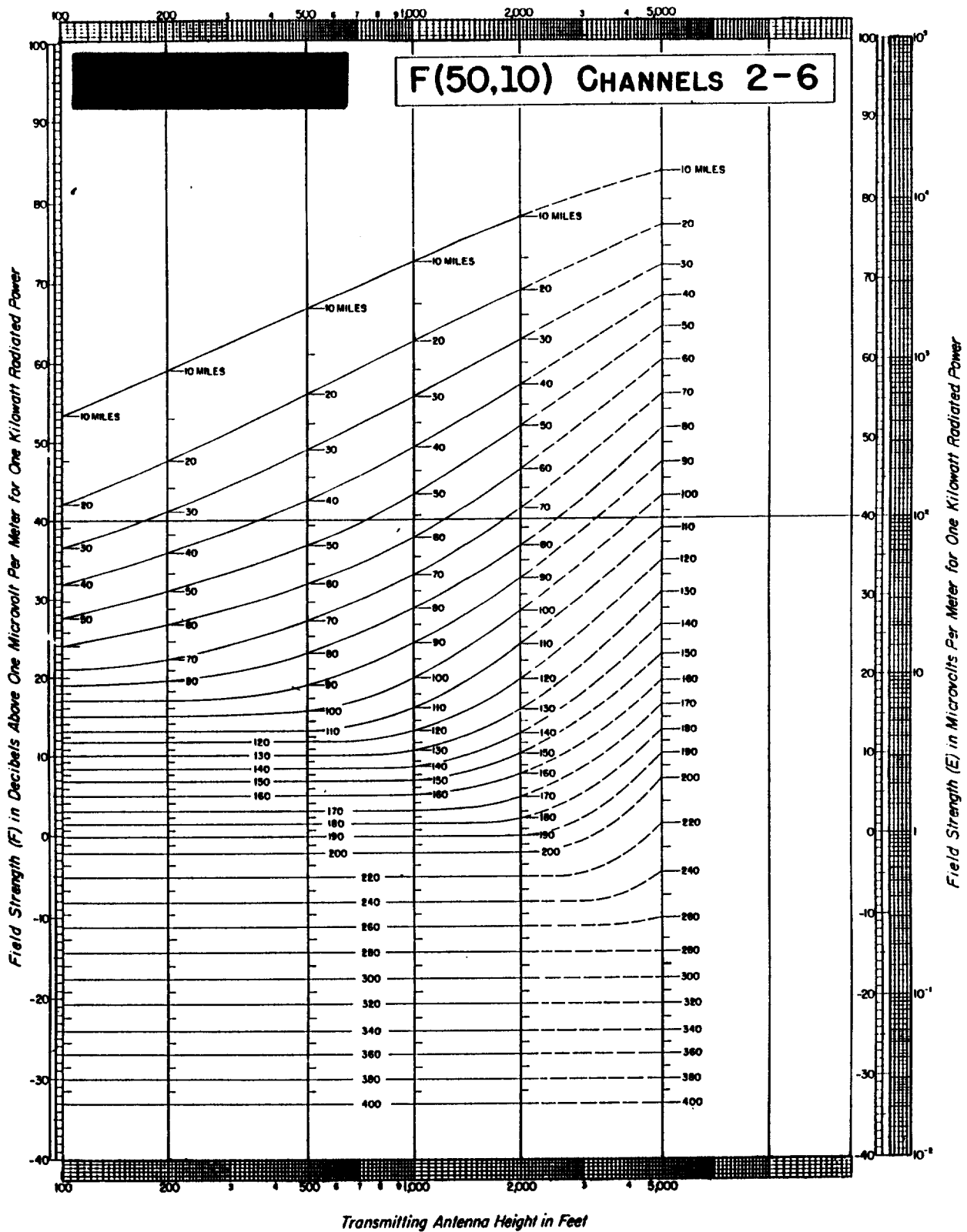
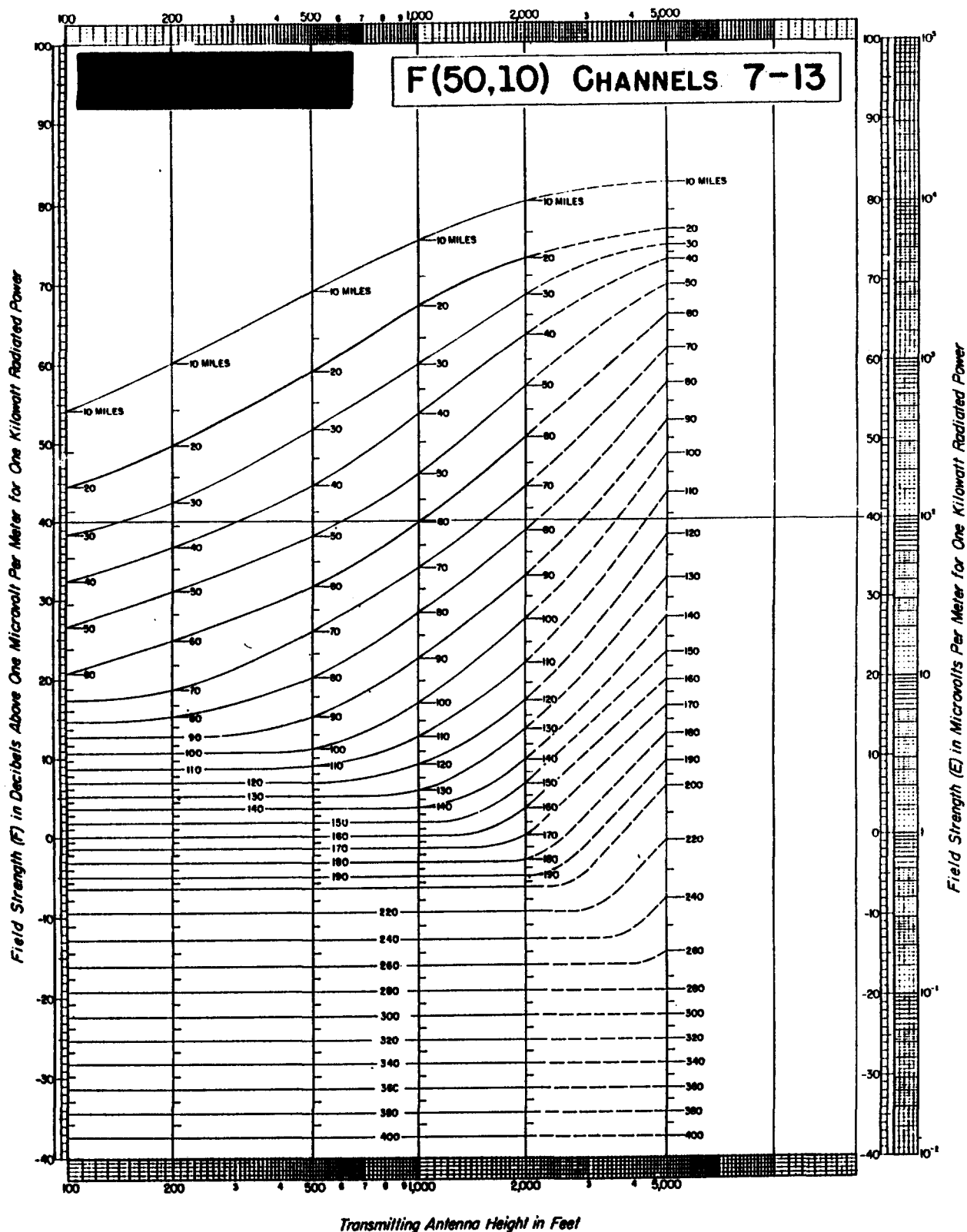


FIGURE 1



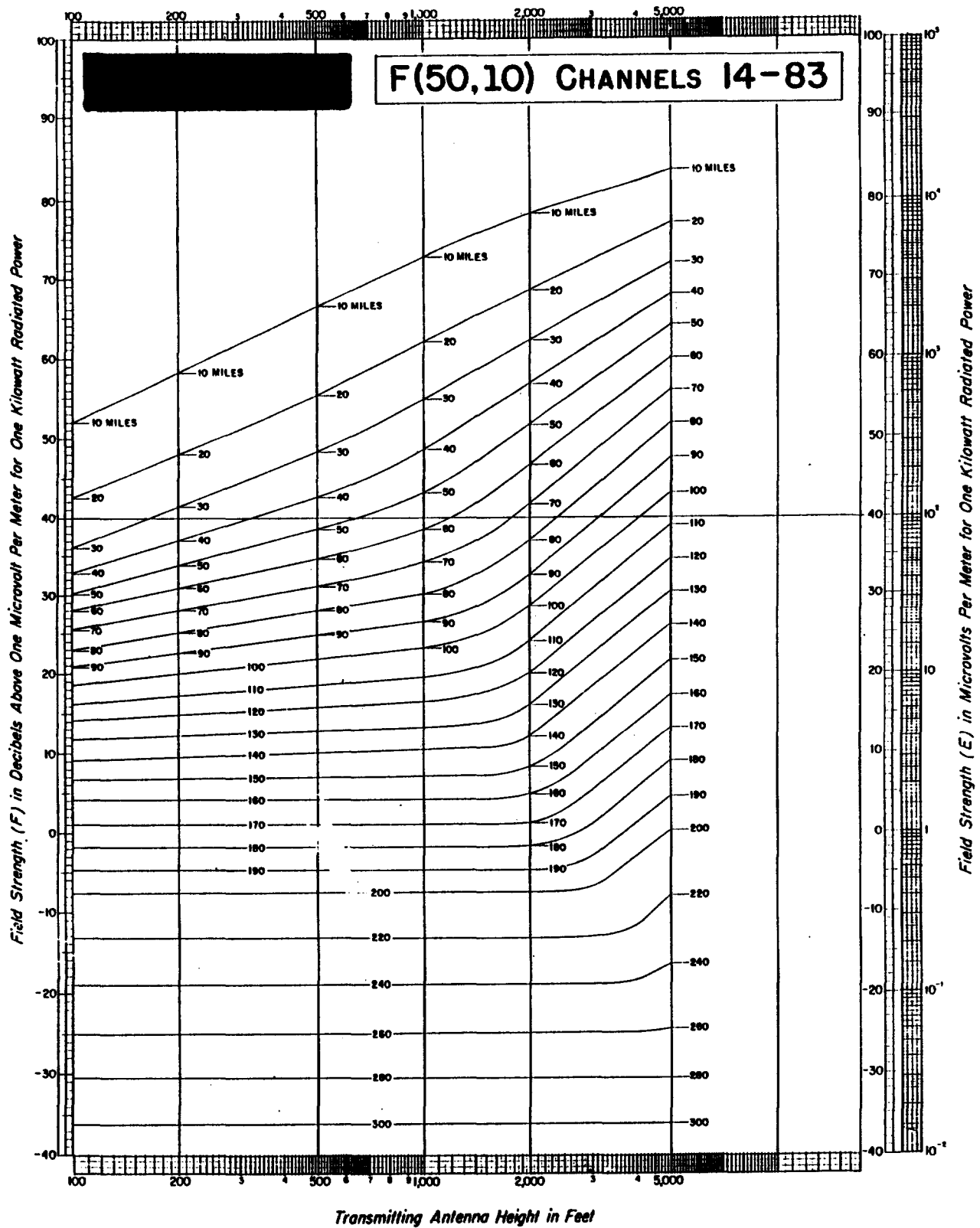
TELEVISION CHANNELS 2-6
ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT OF THE POTENTIAL
RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT OF THE TIME
AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

Figure 2



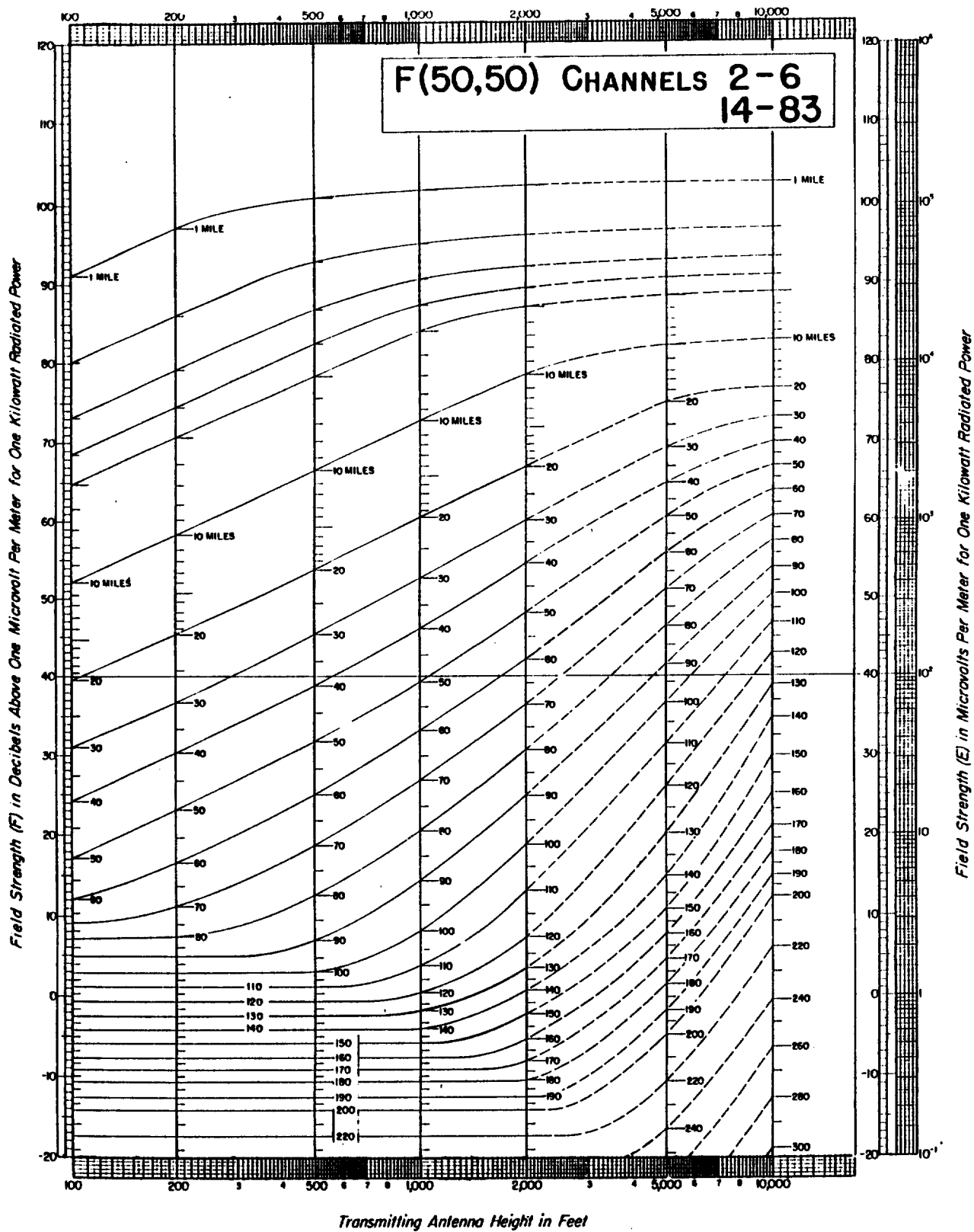
TELEVISION CHANNELS 7-13
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT OF THE POTENTIAL
 RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT OF THE TIME
 AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

Figure 3



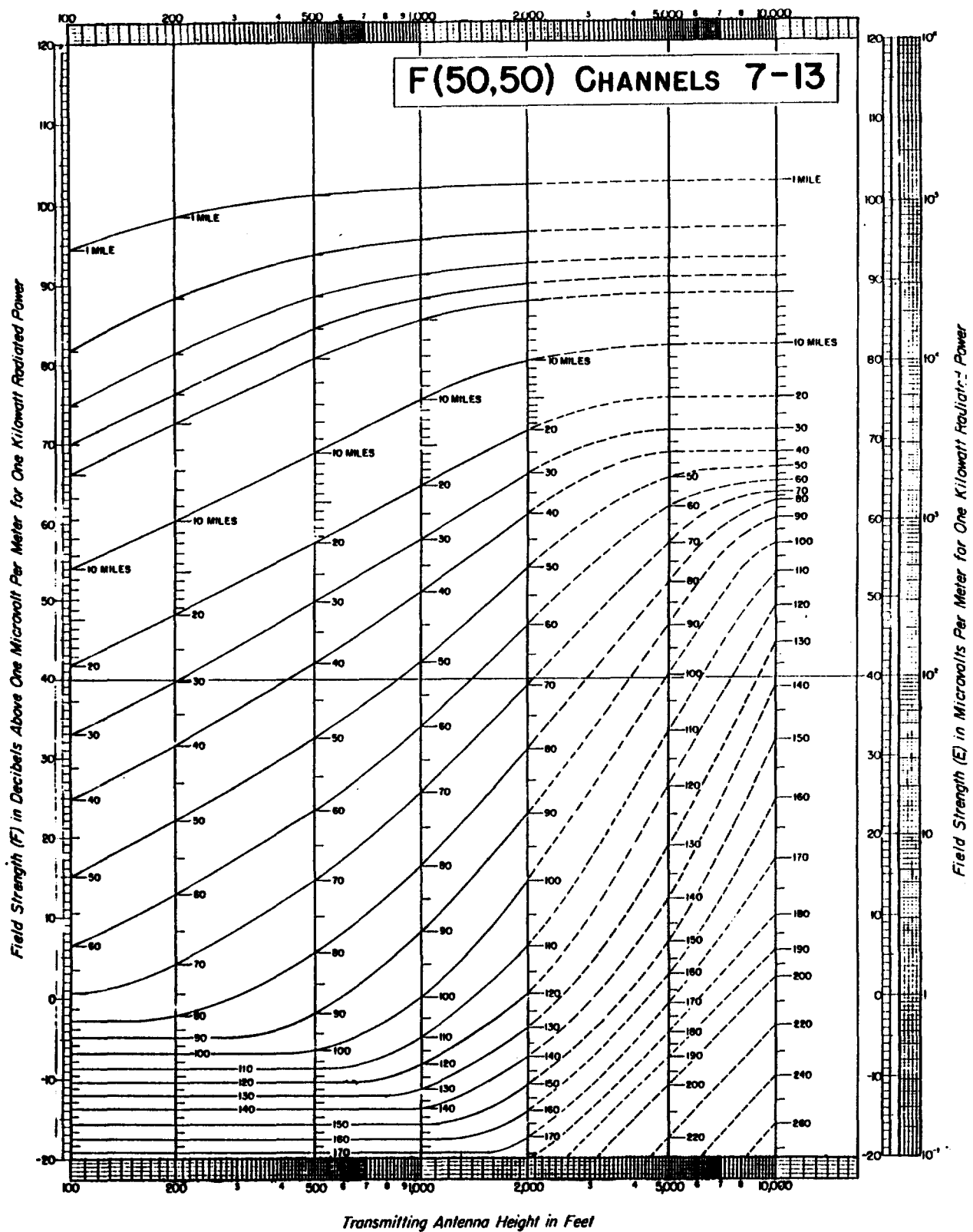
TELEVISION CHANNELS 14-83
 ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT OF THE POTENTIAL
 RECEIVER LOCATIONS FOR AT LEAST 10 PERCENT OF THE TIME
 AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

Figure 4



TELEVISION CHANNELS 2-6, 14-83
ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT OF THE POTENTIAL
RECEIVER LOCATIONS FOR AT LEAST 50 PERCENT OF THE TIME
AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

Figure 5



TELEVISION CHANNELS 7-13
ESTIMATED FIELD STRENGTH EXCEEDED AT 50 PERCENT OF THE POTENTIAL
RECEIVER LOCATIONS FOR AT LEAST 50 PERCENT OF THE TIME
AT A RECEIVING ANTENNA HEIGHT OF 30 FEET

Figure 6

**Before the
Federal Communications Commission
Washington, D.C. 20554**

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)	
)	
Satellite Delivery of Network Signals to)	CS Docket No. 98-201
Unserved Households for Purposes of the)	RM No. 9335
Satellite Home Viewer Act)	RM No. 9345
)	
Part 73 Definition and Measurement of)	
Signals of Grade B Intensity)	

To: The Commission

**JOINT COMMENTS OF THE
ABC, CBS, FOX, AND NBC
TELEVISION NETWORK AFFILIATE ASSOCIATIONS**

Wade H. Hargrove
Kathleen M. Thornton
David Kushner
BROOKS, PIERCE, McLENDON,
HUMPHREY & LEONARD, L.L.P.
First Union Capitol Center
Suite 1600 (27601)
Post Office Box 1800
Raleigh, North Carolina 27602
Telephone: (919) 839-0300
Facsimile: (919) 839-0304
*Counsel for the ABC Television
Affiliates Association and for the
Fox Television Affiliates Association*

Kurt A. Wimmer
Erin M. Egan
COVINGTON & BURLING
1201 Pennsylvania Avenue, N.W. (20004)
Post Office Box 7566
Washington, D.C. 20044-7566
Telephone: (202) 662-6000
Facsimile: (202) 662-6291
*Counsel for the CBS Television
Network Affiliates Association*

Antoinette Cook Bush
David H. Pawlik
SKADDEN ARPS SLATE MEAGHER & FLOM
1440 New York Avenue, N.W.
Washington, D.C. 20005-2111
Telephone: (202) 371-7000
Facsimile: (202) 393-5760
*Counsel for the NBC Television
Affiliates Association*

December 11, 1998

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Declaration of Kenneth A. Franken

I, Kenneth A. Franken, hereby declare as follows:

1. I am Kenneth A. Franken, Product Development Manager at Decisionmark Corp.
2. I have eight years of computer programming experience, including more than three years of experience in the development of software for numerical simulations. In addition, I have two years of experience in the development of GIS/mapping software and the analysis of geographic data. I also possess two years of experience in the development of software designed for purposes of aiding compliance with the Satellite Home Viewer Act ("SHVA"), including, in particular, the preparation of signal area maps based on the Longley-Rice Irregular Terrain Model. I have been responsible for the development of the software and data used in Decisionmark's ProximityTV, a SHVA compliance tool. ProximityTV is used by approximately 75% of the commercial television stations affiliated with one of the four major networks (ABC, CBS, Fox, and NBC). I also developed much of the software used to process data in the broadcasting industry-Primestar-Netlink "Red Light/Green Light" agreement.
3. I prepared the accompanying signal area maps and data summaries at the request of the Television Affiliates Associations (the "Affiliates") for use by the Affiliates in response to the *Notice of Proposed Rule Making*, FCC 98-302, released November 17, 1998, in the matter of Satellite Delivery of Network Signals to Unserved Households for Purposes of the Satellite Home Viewer Act.
4. These maps and their accompanying data are true and correct to the best of my information, knowledge, and belief.

This the 8th day of December, 1998.

A handwritten signature in black ink, appearing to read "K A Franken", written over a horizontal line.

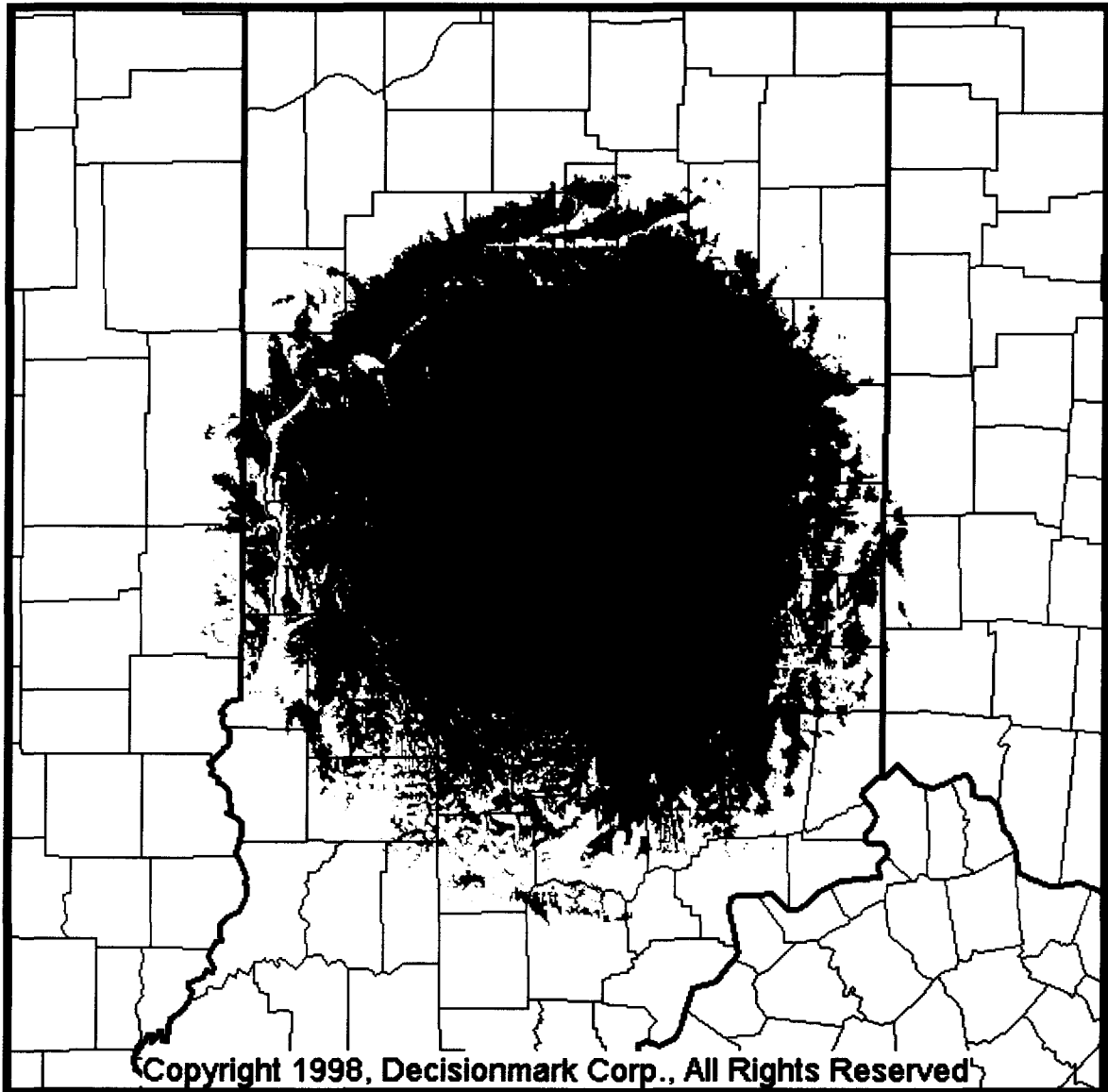
Kenneth A. Franken
Product Development Manager

Large
Markets

WRTV (ABC, Channel 6)

Indianapolis, Indiana

Predicted Signal Areas and Demographics



- Grade A Longley-Rice 50% Location, 50% Time, 50% Confidence
- Grade B Longley-Rice 50% Location, 50% Time, 50% Confidence
- ▲ Tower Location

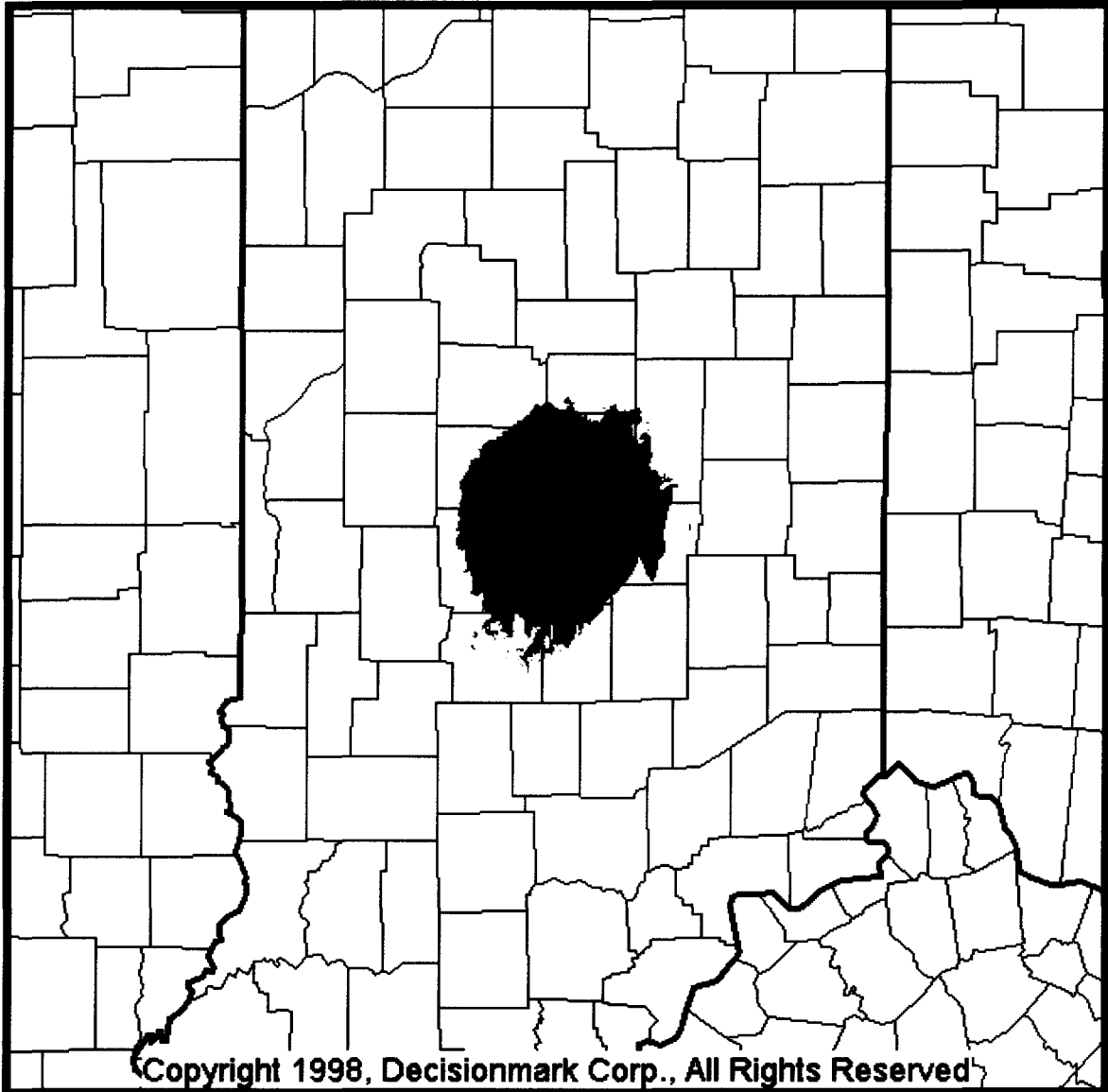
Summary Demographic Data (1990 Census)

	FCC B	L/R B (50/50/50)	FCC A	L/R A (50/50/50)
Served Population	2,448,707	2,500,296	1,440,180	1,500,445
Served Households	925,731	943,589	552,632	575,262
Served Land Area (km ²)	32,091	34,844	10,694	12,848

WRTV (ABC, Channel 6)

Indianapolis, Indiana

Predicted Signal Areas and Demographics



- Grade A Longley-Rice 99% Location, 99% Time, 99% Confidence
- Grade B Longley-Rice 99% Location, 99% Time, 99% Confidence
- ▲ Tower Location

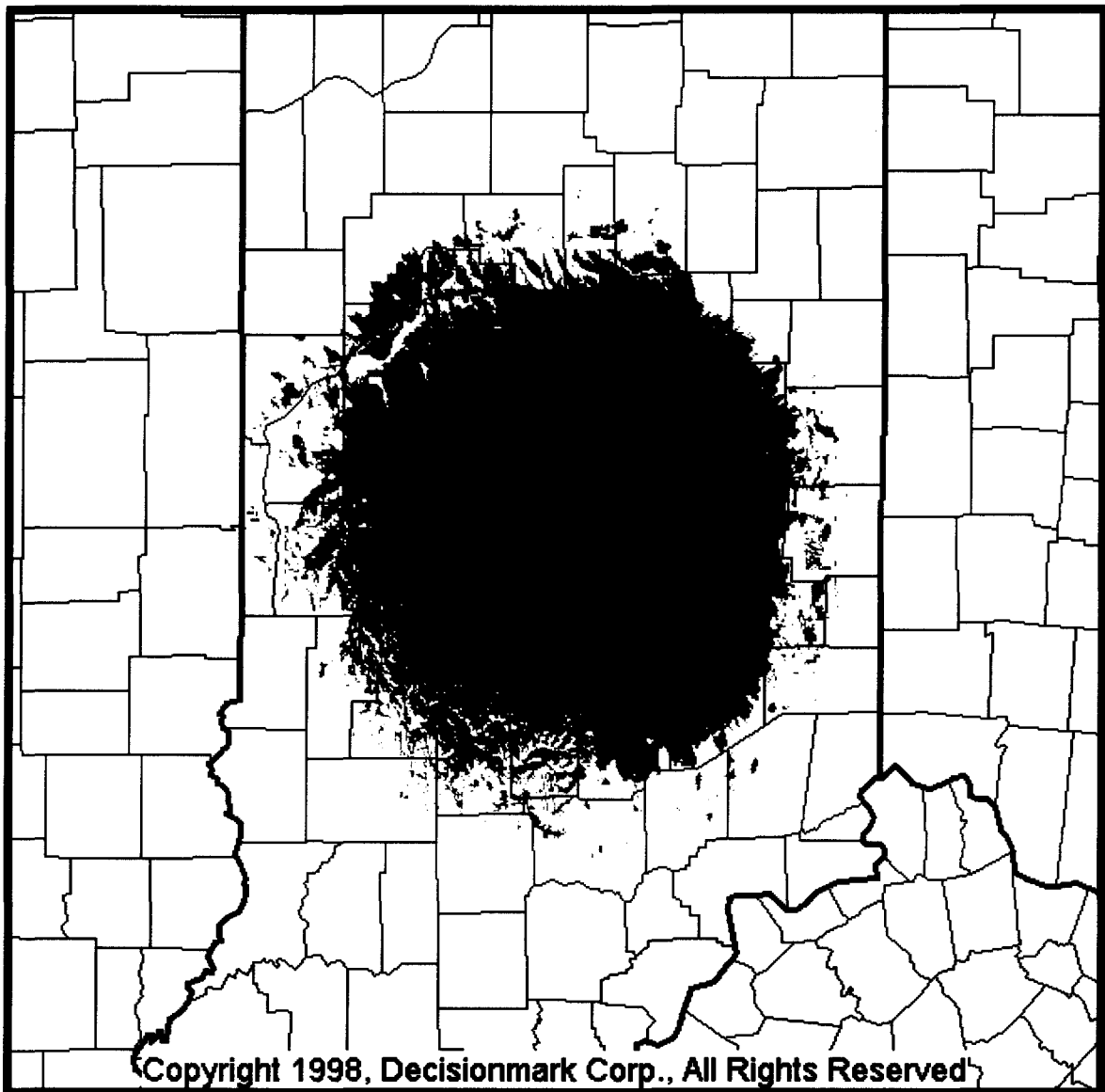
Summary Demographic Data (1990 Census)

	FCC B	L/R B (99/99/99)	FCC A	L/R A (99/99/99)
Served Population	2,448,707	1,127,602	1,440,180	377,677
Served Households	925,731	435,916	552,632	155,964
Served Land Area (km ²)	32,091	4,349	10,694	571

WRTV (ABC, Channel 6)

Indianapolis, Indiana

Predicted Signal Areas and Demographics



- Grade B Longley-Rice 70% Location, 90% Time, 50% Confidence
- ▲ Tower Location

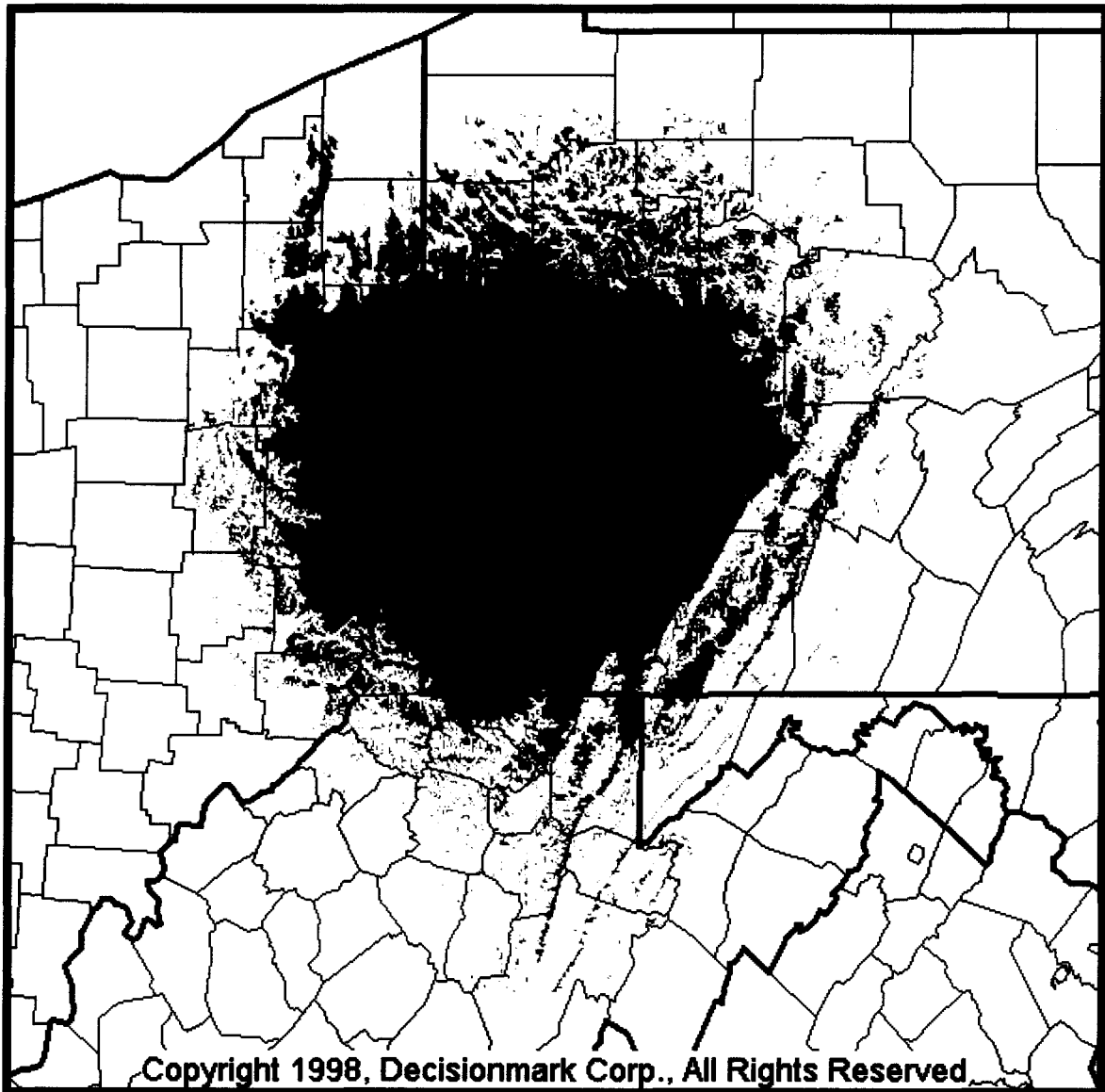
Summary Demographic Data (1990 Census)

	FCC B	L/R B (70/90/50)
Served Population	2,448,707	2,158,960
Served Households	925,731	816,266
Served Land Area (km ²)	32,091	24,243

KDKA (CBS, Channel 2)

Pittsburgh, Pennsylvania

Predicted Signal Areas and Demographics



- Grade A Longley-Rice 50% Location, 50% Time, 50% Confidence
- Grade B Longley-Rice 50% Location, 50% Time, 50% Confidence
- ▲ Tower Location

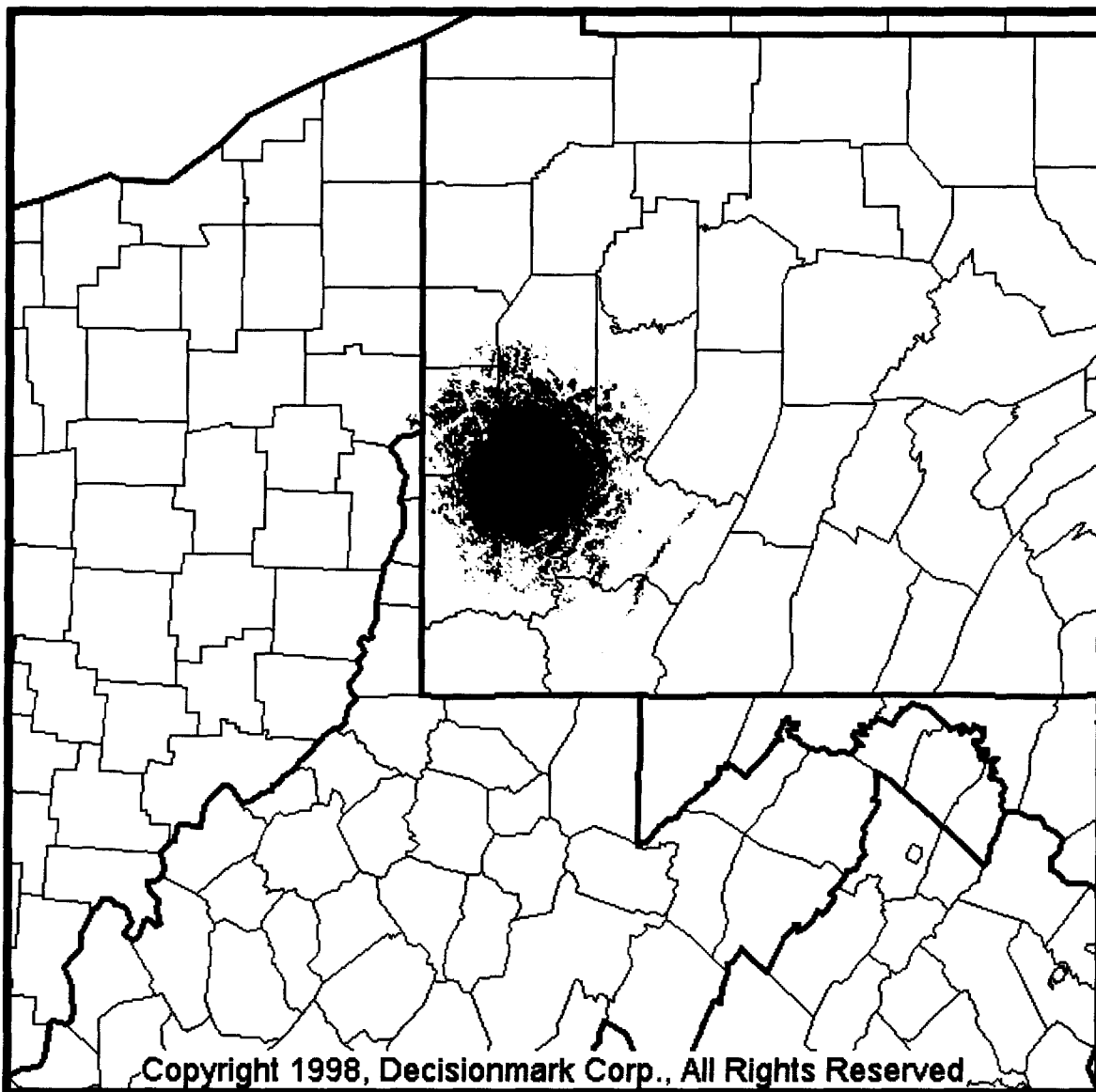
Summary Demographic Data (1990 Census)

	FCC B	L/R B (50/50/50)	FCC A	L/R A (50/50/50)
Served Population	3,960,289	3,770,476	2,483,593	2,420,663
Served Households	1,544,728	1,463,736	983,268	954,971
Served Land Area (km ²)	31,553	33,474	10,645	12,714

KDKA (CBS, Channel 2)

Pittsburgh, Pennsylvania

Predicted Signal Areas and Demographics



- Grade A Longley-Rice 99% Location, 99% Time, 99% Confidence
- Grade B Longley-Rice 99% Location, 99% Time, 99% Confidence
- ▲ Tower Location

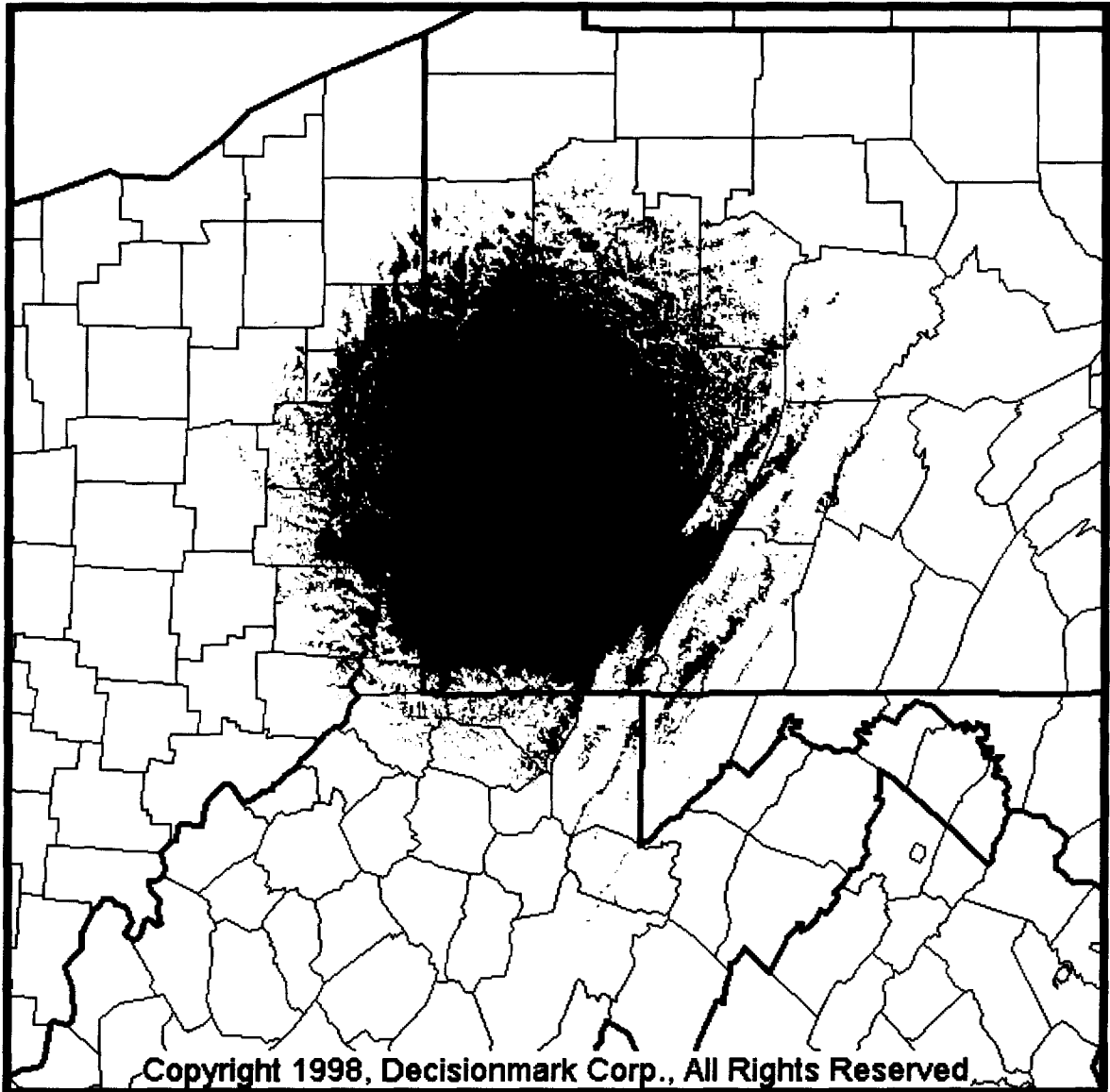
Summary Demographic Data (1990 Census)

	FCC B	L/R B (99/99/99)	FCC A	L/R A (99/99/99)
Served Population	3,960,289	1,541,565	2,483,593	291,279
Served Households	1,544,728	617,180	983,268	120,791
Served Land Area (km ²)	31,553	3,379	10,645	174

KDKA (CBS, Channel 2)

Pittsburgh, Pennsylvania

Predicted Signal Areas and Demographics



- Grade B Longley-Rice 70% Location, 90% Time, 50% Confidence
- ▲ Tower Location

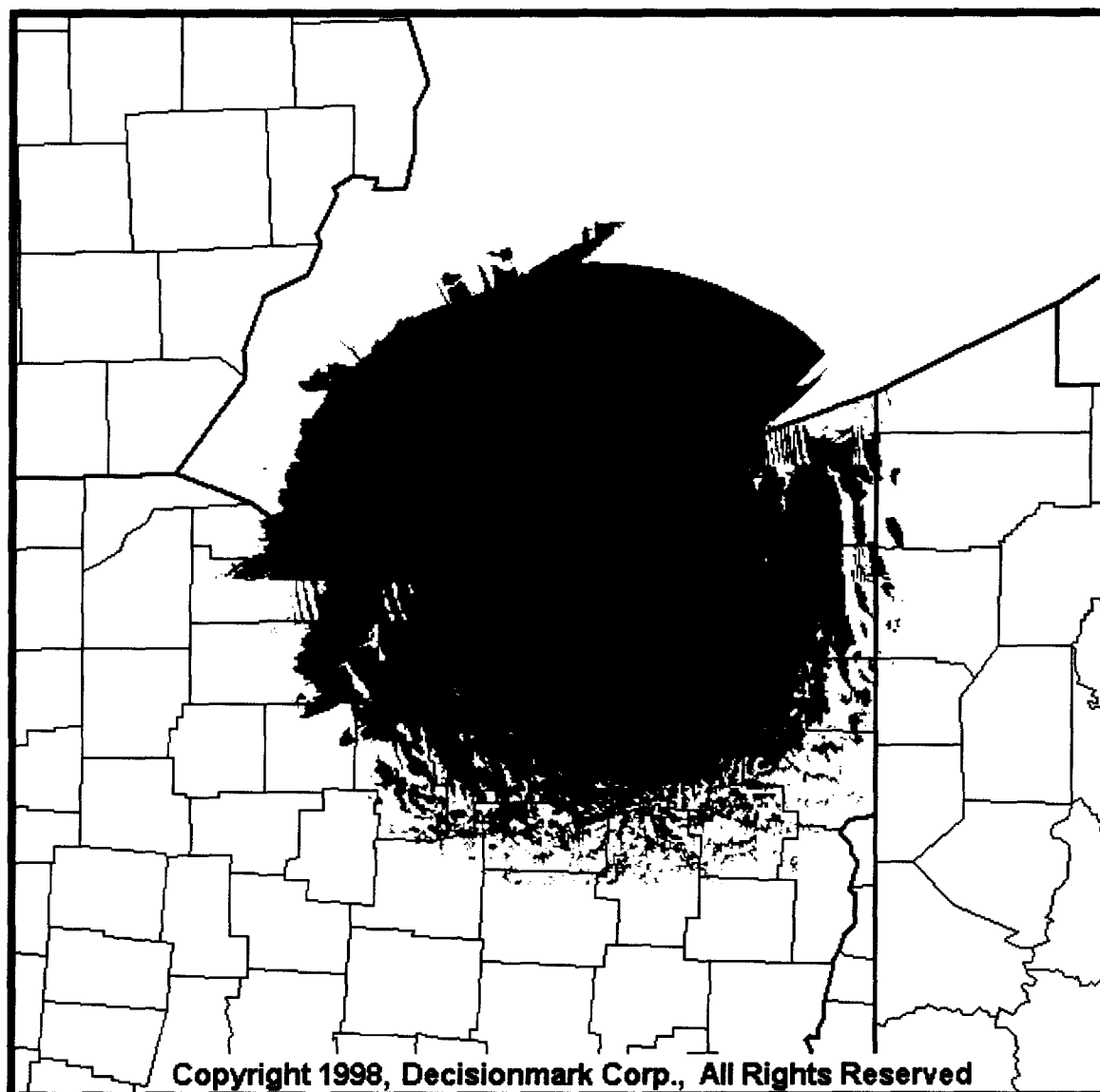
Summary Demographic Data (1990 Census)

	FCC B	L/R B (70/90/50)
Served Population	3,960,289	3,204,062
Served Households	1,544,728	1,251,475
Served Land Area (km ²)	31,553	22,968

WJW (FOX, Channel 8)

Cleveland, Ohio

Predicted Signal Areas and Demographics



- Grade A Longley-Rice 50% Location, 50% Time, 50% Confidence
- Grade B Longley-Rice 50% Location, 50% Time, 50% Confidence
- ▲ Tower Location

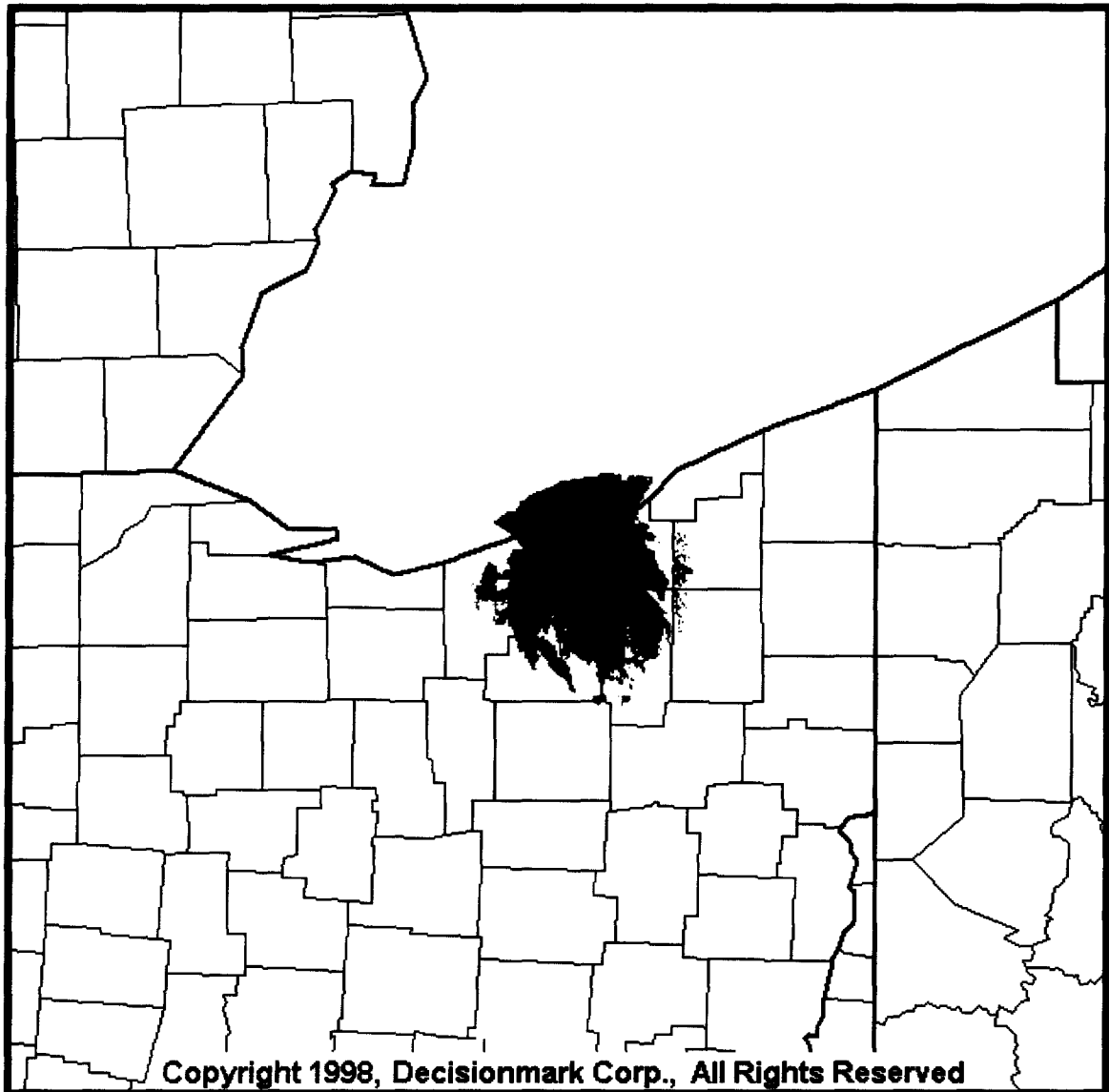
Summary Demographic Data (1990 Census)

	FCC B	L/R B (50/50/50)	FCC A	L/R A (50/50/50)
Served Population	3,991,776	3,882,204	2,944,875	3,103,701
Served Households	1,507,894	1,467,747	1,118,398	1,178,298
Served Land Area (km ²)	18,119	18,045	8,699	9,854

WJW (FOX, Channel 8)

Cleveland, Ohio

Predicted Signal Areas and Demographics



- Grade A Longley-Rice 99% Location, 99% Time, 99% Confidence
- Grade B Longley-Rice 99% Location, 99% Time, 99% Confidence
- ▲ Tower Location

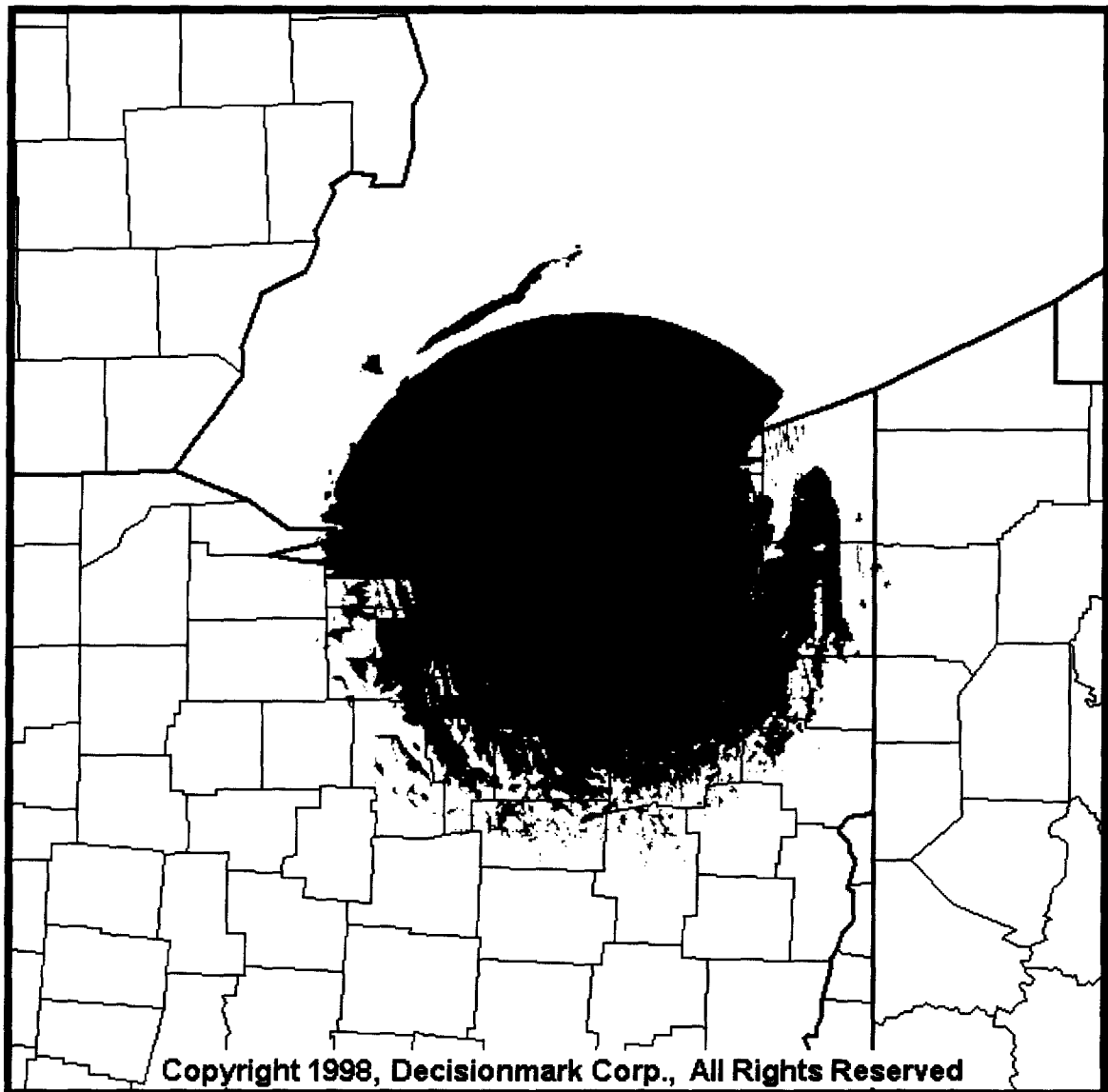
Summary Demographic Data (1990 Census)

	FCC B	L/R B (99/99/99)	FCC A	L/R A (99/99/99)
Served Population	3,991,776	1,645,169	2,944,875	219,121
Served Households	1,507,894	638,962	1,118,398	86,630
Served Land Area (km ²)	18,119	2,280	8,699	258

WJW (FOX, Channel 8)

Cleveland, Ohio

Predicted Signal Areas and Demographics



- Grade B Longley-Rice 70% Location, 90% Time, 50% Confidence
- ▲ Tower Location

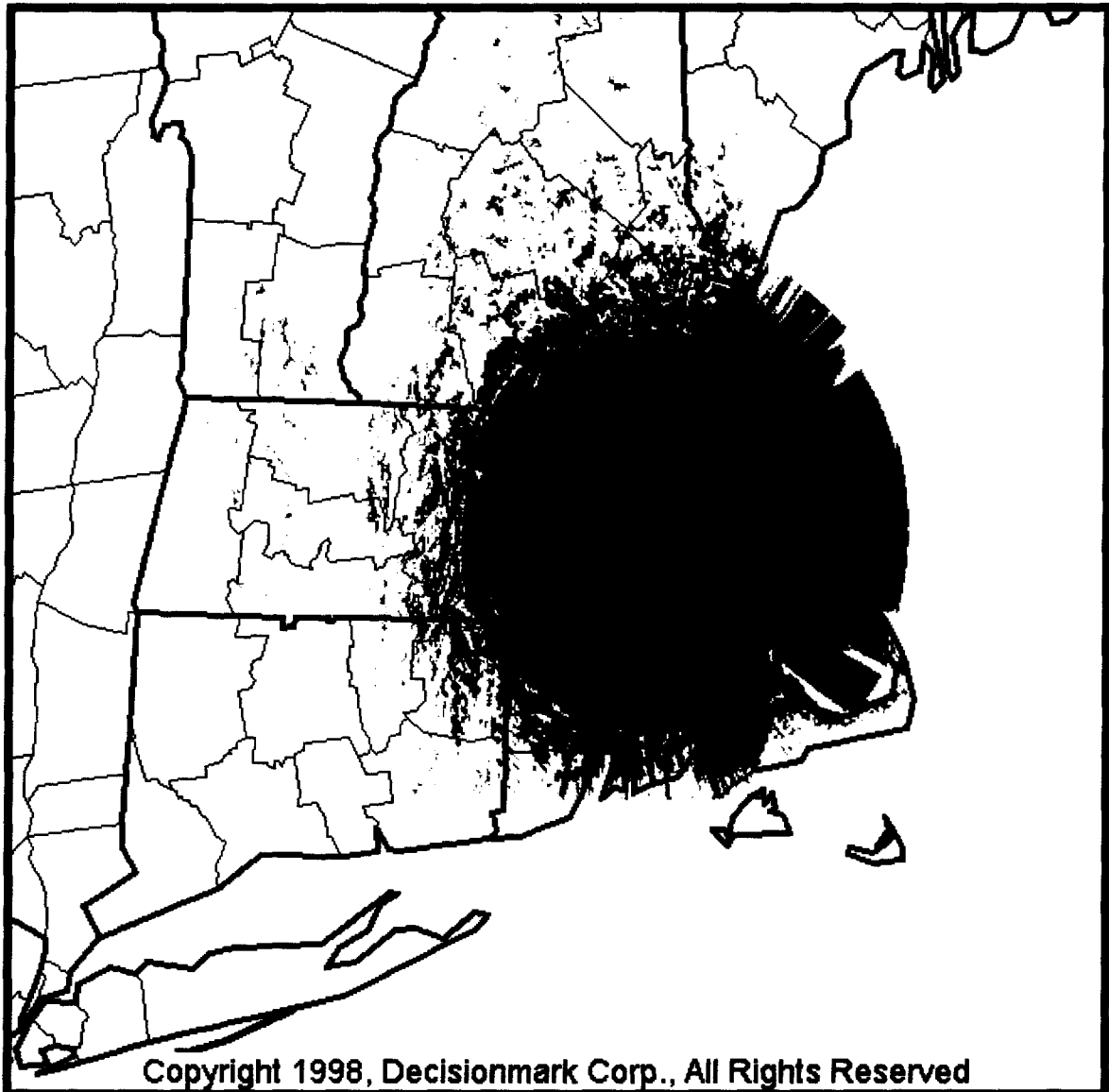
Summary Demographic Data (1990 Census)

	FCC B	L/R B (70/90/50)
Served Population	3,991,776	3,563,015
Served Households	1,507,894	1,349,660
Served Land Area (km ²)	18,119	13,400

WHDH (NBC, Channel 7)

Boston, Massachusetts

Predicted Signal Areas and Demographics



- Grade A Longley-Rice 50% Location, 50% Time, 50% Confidence
- Grade B Longley-Rice 50% Location, 50% Time, 50% Confidence
- ▲ Tower Location

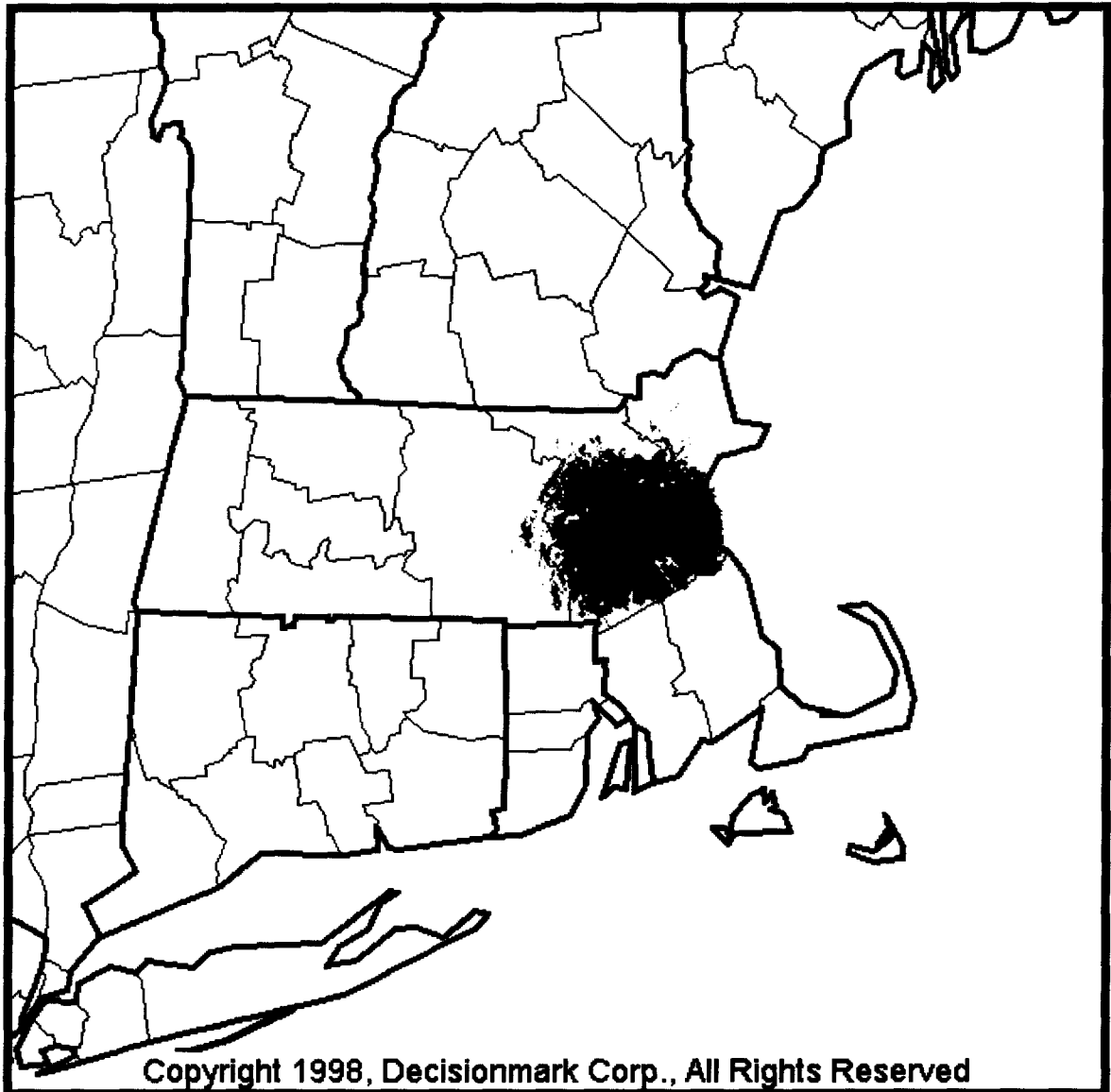
Summary Demographic Data (1990 Census)

	FCC B	L/R B (50/50/50)	FCC A	L/R A (50/50/50)
Served Population	6,717,104	6,564,959	5,325,532	5,554,746
Served Households	2,499,474	2,445,593	1,982,669	2,066,202
Served Land Area (km ²)	18,530	18,356	9,758	11,299

WHDH (NBC, Channel 7)

Boston, Massachusetts

Predicted Signal Areas and Demographics



- Grade A Longley-Rice 99% Location, 99% Time, 99% Confidence
- Grade B Longley-Rice 99% Location, 99% Time, 99% Confidence
- ▲ Tower Location

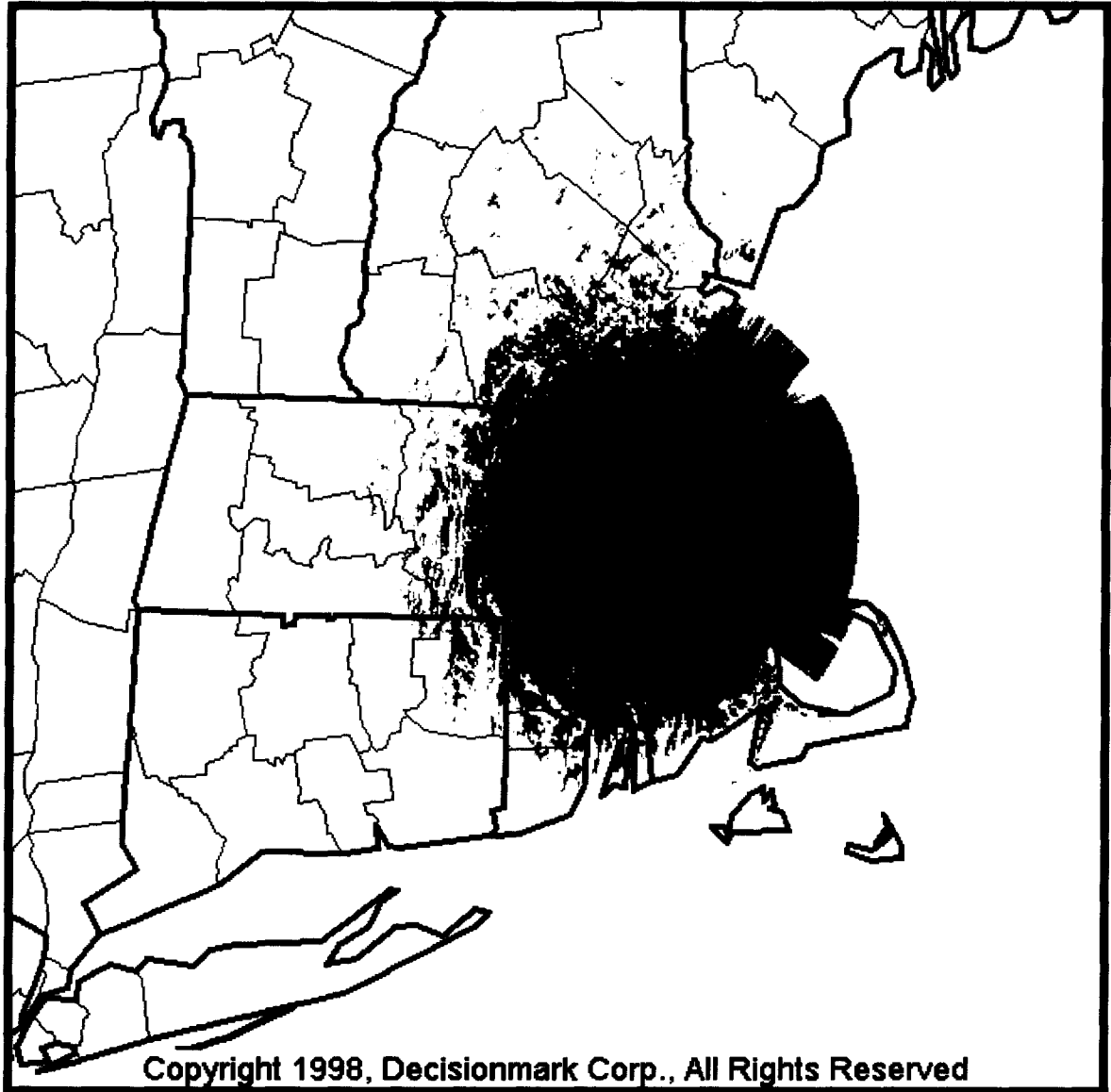
Summary Demographic Data (1990 Census)

	FCC B	L/R B (99/99/99)	FCC A	L/R A (99/99/99)
Served Population	6,717,104	2,592,336	5,325,532	548,357
Served Households	2,499,474	987,700	1,982,669	210,906
Served Land Area (km ²)	18,530	2,560	9,758	315

WHDH (NBC, Channel 7)

Boston, Massachusetts

Predicted Signal Areas and Demographics



- Grade B Longley-Rice 70% Location, 90% Time, 50% Confidence
- ▲ Tower Location

Summary Demographic Data (1990 Census)

	FCC B	L/R B (70/90/50)
Served Population	6,717,104	6,086,862
Served Households	2,499,474	2,265,979
Served Land Area (km ²)	18,530	14,254